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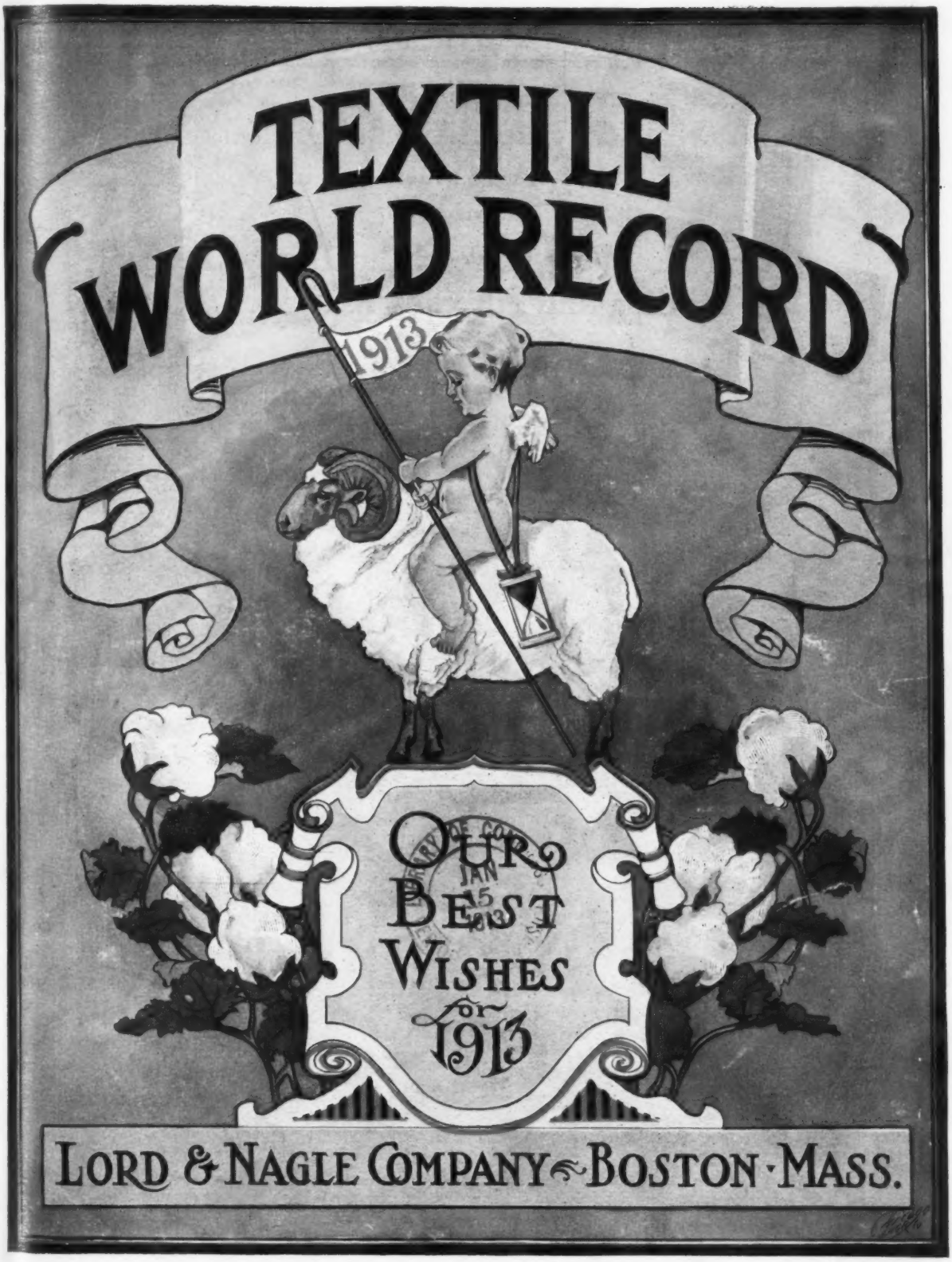

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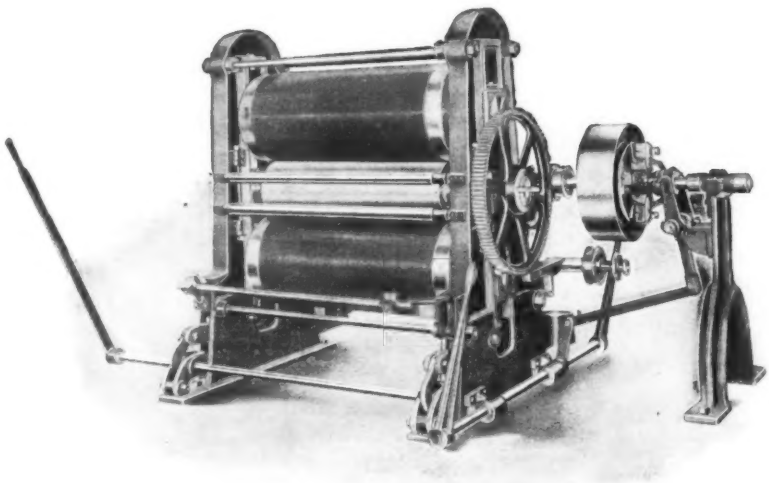

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Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

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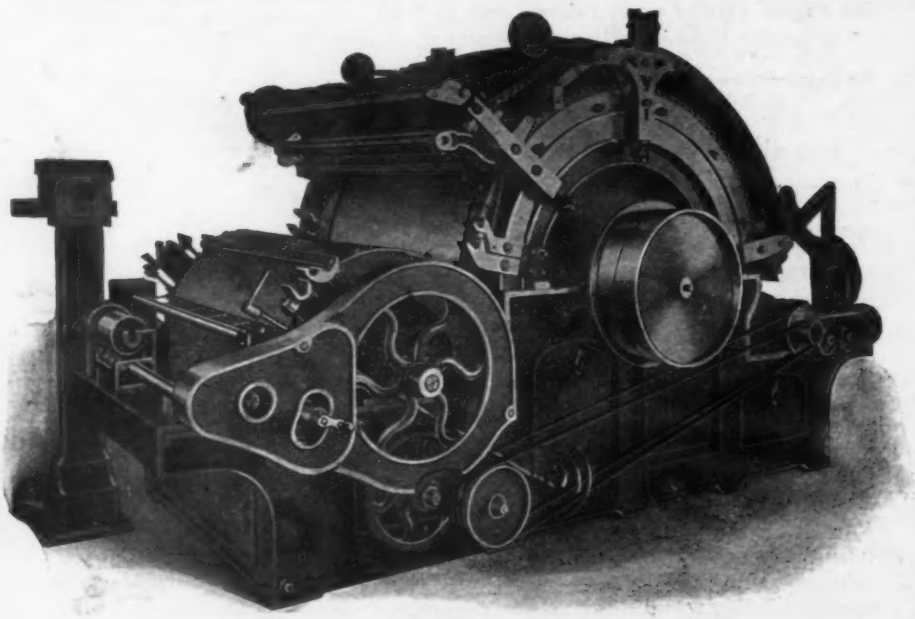

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TEXTILE WORLD RECORD

JANUARY, 1913

Monthly Comment.

The New Year

To subscribers and advertisers, to all our friends, we extend best wishes and sincerely hope that this New Year will bring to all a full measure of prosperity, of peace and contentment.

The Coming Revision of the Tariff

The textile industry seldom faced a more important problem than that involved in the revision of the tariff by the sixty-third Congress, which President Wilson will call in extra session soon after his inauguration next March. At such a time as this it is the duty of everyone connected with the textile trade to do what he can to aid Congress and the President in bringing about a prompt and wise revision of the tariff schedules. The Democratic party will assume control of the government on the 4th of March pledged to revise the tariff downward. Here is the pledge stated in three paragraphs from the tariff plank of the Baltimore platform:

> We declare it to be a fundamental principle of the democratic party that the federal government under the constitution has no right or power to impose or collect tariff duties, except for the purpose of revenue, and we demand that the collection of such taxes shall be limited to the necessities of government honestly and economically administered.
>
> We favor the immediate downward revision of the existing high, and in many cases, prohibitive tariff duties, insisting that material reductions be speedily made upon the necessaries of life. Articles entering into competition with trust-controlled products and articles of American manufacture which are sold abroad more cheaply than at home, should be put upon the free list.
>
> We recognize that our system of tariff taxation is intimately connected with the business of the country, and we favor the ultimate attainment of the principles we advocate by legislation that will not injure or destroy legitimate industry.

That tariff plank means, if it means anything, that the first step in the revision of the tariff next summer is intended to work no injury to the textile industry. This interpretation was made clear by the Democratic candidate, Gov. Wilson, during the recent campaign, the following being an extract from his speech at Pittsburg on October 18:

> I welcome the opportunity of stating what I believe to be the well considered position of the Democratic party with regard to the tariff. It is absolutely essential that we should be entirely frank with one another in the discussion of this fundamental question.
>
> The business men of the country owe it to themselves to face the facts as they are and to meet them in a spirit of accommodation which has no touch either of radicalism or of more theoretical reconstruction in it.
>
> The Democratic party does not propose free trade or anything approaching free trade. It proposes merely a reconsideration of the tariff schedules such as will adjust them to the actual business

conditions and interests of the country. Every observant business man must have realized long ago that the tariff schedules were constructed in such a way that business was not upon a normal basis in the United States. They do not constitute a system of well considered protection. On the contrary, they embody innumerable cunningly devised and carefully concealed special favors and particular groups of capitalists and manufacturers have taken advantage of these special favors to build monopoly up in a way that is threatening and dangerous to every new and independent enterprise. Our field of industry is like an untended garden. Some of the plants have so overshadowed the rest as to give them no chance of light or air. Their roots, moreover, have monopolized the soil, and new growths are all but impossible. If we have stable prosperity, we must admit light and air and freedom into the whole process of our industrial life, and it is with that object that the Democrats will approach the revision of the tariff. Their desire is not to check, but to aid, not to embarrass, but to quicken.

They will not undertake the task like amateurs, either. They will seek and obtain the best possible advice in the country, but they will seek it far and wide, and not only in the quarters from which it has usually come.

The Democratic Congress and President cannot injure the textile industry in this country without breaking the pledge given to the American people in their Baltimore platform. That being the situation, it is the reasonable and common sense course for textile manufacturers to act on the assumption that the Democratic Congress and President will legislate as they agreed to legislate before the voters intrusted them with power. It is not to be expected that the new Congress and President will assume power possessed of the information necessary to revise such complicated schedules as those relating to textiles. They will need all the information available. President-elect Wilson has declared that "they will seek and obtain the best possible advice in the country," and rightly says that "the business men of the country owe it to themselves to face the facts as they are and meet them in a spirit of accommodation." And under such conditions it is the plain duty of textile manufacturers to meet the new administration half way, giving in a calm and businesslike way all the facts available in order that the tariff question may be settled right and the industry assured of freedom from tariff disturbance, not only for the present, but for years to come.

The Boston Wool Trade Association

Following the practice begun last year, the Boston Wool Trade Association has issued a statement of the total stock of wool on hand and unsold in Boston on Dec. 31, 1912, as tabulated by Gunn, Richards & Co., accountants for the association:

	1912	1911
Territory, California, Texas .....lbs.	21,732,733	48,393,319
Fleeces (grown east of the Mississippi River, and Minnesota, Iowa and Missouri)	4,712,000	6,516,957
Scoured	3,605,379	5,623,678
Pulled	1,872,206	2,046,169
Foreign, Class 1 and 2	8,719,383	4,800,054
Foreign, Class 3	2,208,154	2,259,763
	42,849,855	69,639,940

The amount shows a decrease of 26,790,085 pounds, and is probably the smallest stock of wool on hand in Boston the first of January for many years.

—÷—

The Duty on Silk Noils

An echo of the agitation over the ruling of the Treasury Department in Aug. 18, 1911, imposing a duty of 35 cents a pound on silk noils, is found in the letters from the Silk Club, of Bradford, and the British Board of Trade. The courts have not passed on this ruling, which was sprung on the trade suddenly, and, after the date of its going into effect had been changed twice, was modified on Dec. 15, 1911, so as to limit its application to "silk noils composed principally of fibers which are more than two inches in length." Vigorous protests against the original ruling were promptly made by American manufacturers using silk noils, and now it appears that the 2-inch limit leaves on the free list the longest noils produced by English mills.

Bradford, England, Nov. 15, 1912.

Editor Textile World Record:

Dear Sir: I have the pleasure to enclose you a copy of a letter received from the British Board of Trade, London, referring to the exportation of silk noils to the United States. The samples mentioned in that letter were long white noils and long tussah noils, and were longer in staple than the ordinary productions of English spinners.

It is therefore quite evident that the ordinary productions of long noils of any English spinner, even tussah noils thrown off at the 4th drafts, will be accepted by the United States Treasury De-

partment free of duty under paragraph 673 of the Tariff Act.

This paragraph 673 is on the free list and reads, "Silk Cocoons and Silk Waste."

Yours faithfully,

Frank Sims,
Chairman of the Silk Club.

Following is the letter from the British Board of Trade, to which Mr. Sims refers:

Board of Trade.
London, S. W., Nov. 6, 1912.

Sir: With reference to recent correspondence relative to the tariff classification of silk noils in the United States, I am directed by the Board of Trade to inform you that they have now received, through the Foreign Office, copy of a note which the United States Government have addressed to H. M. Ambassador at Washington, in which it is stated that the samples forwarded to this Department with your letter of the 7th June have been submitted to a careful examination.

The note states that while a considerable portion of the fibers in these samples are over two inches in length, the samples are not composed principally of fibers of that length, and that silk noils identical with the samples submitted are therefore, in the opinion of the United States Treasury Department, entitled to entry into the United States free of duty under paragraph 673 of the tariff act.

One-half of each of the samples of silk noils referred to has been returned to H. M. Embassy by the United States Department concerned, and will be forwarded to you in accordance with your request as soon as received in this Department. I am, sir, your obedient servant,

Geo. J. Stanley.

Frank Sims, Esq., Chairman of the Silk Club, care Messrs. Marsdon & Hunter, 42, Vicar Lane, Bradford.

Manila Hemp

There appears in this issue a carefully prepared article by Harold M. Pitt, of Manila, on the effect of the refund of the export duty on hemp shipped from the Philippines to the United States. Public attention was attracted to the question some months ago by statements made in a book by the Hon. James H. Blount, who had served as a volunteer officer and judge in the Philippines. Judge Blount claimed that the export duty is collected on all hemp exported from the archipelago, including that shipped to the United States, and that the Philippine producer receives the same price, regardless of the country to which the hemp is shipped. After a time the export duty on hemp shipped to the United States is refunded, and according to Judge Blount the money all goes into the pockets of the Philippine exporter. Judge Blount claimed further that the refund of the export duty had benefitted only the hemp manufacturer in the United States, and had operated as a serious injury to the Filipino by bringing about a reduction in the market price of the fiber.

This line of argument was very plausibly presented, but as it was involved in more or less partisan controversy over the American occupation of the Philippines we thought best to obtain a statement of the case from a man on the spot, who could speak from personal observation and who did not share Judge Blount's antipathy to the American occupation. Mr. Pitt disputes Judge Blount's claim that the refund of the duty has caused a decline in the price of hemp and gives facts regarding supply and demand which appear to refute the Blount contention. Both, however, are practically agreed that the benefit of the refund goes to the shipper, who represents the American manufacturer. Mr. Pitt claims that under certain market conditions the benefit is occasionally shared by the Filipino and the shipper, but it is evident from what he says that the Filipino's share is small and uncertain. Mr. Pitt's statement makes it reasonably certain as to where the benefit does not go. He claims that the American manufacturer shares it with the American consumer. Judge Blount claims that the manufacturer shares it with neither the Filipino nor the American consumer. Where the benefit of the refund goes is, however, another question, on which neither Judge Blount nor Mr. Pitt can speak the last word. The point of greatest importance is that no material benefit from the refund has accrued to the little brown wards of the American nation, who are shown in Mr. Pitt's illustrations, engaged in the laborious occupation of peeling, stripping and baling the hemp, and transporting it to the seaboard. The refund of the export duty will undoubtedly come up for discussion in Congress, and the facts we have brought out cannot fail to aid in reaching a wise conclusion.

No Free Wool

The following letters, coming as they do one from a wool grower in the West, the other from a wool manufacturer in New England, are indicative of recognition of the rights of both branches of the wool industry, which we trust may be shared by the great majority.

National Wool Growers' Association,
Gooding, Ida., Dec. 13, 1912.

Editor Textile World Record, Boston, Mass.

My dear Mr. Editor:—I have the Textile World Record for December, 1912, and note with much gratification your leading editorial in opposition to free wool. This editorial represents the proper spirit, and presents the situation absolutely as it is. The election was fought out on a program into which free wool did not enter, and it would be just as treacherous now to give the wool grower free wool as it was to fail to revise schedule K in 1909. The wool growers as a body feel that the manufacturers are entitled to, and must have, protection, and in fact are ready to make a fight to see that they receive it. On the other hand, they feel that wool growing is just as important as wool manufacturing, and therefore the grower should have protection. All the wool grower is asking for is a fair and equitable revision of schedule K, which accords to all concerned a fair and just measure of protection.

Your editorial against free wool comes with particular force at this time when two of the other textile papers of the East have recently come out for free wool, having repudiated what was previously asserted as their belief. Therefore on behalf of the wool growing industry of this country, I want to thank you for your fair and honorable stand upon this question.

Very truly yours,
S. W. McClure, Secretary.

* * *

Dudley, Mass., Dec. 14, 1912.

Editor Textile World Record, Boston, Mass.

Dear Sir:—I wish to congratulate you on your statement in regard to wool in your December number. This is exactly right in every way.

Very truly yours,
Eben G. Parsons.

This is a time when all the interests involved should work harmoniously for the good of all. No one branch should try to benefit at the expense of another. The free wool proposition is fundamentally unsound and politically dangerous. It would be unfair to the wool growers and prove a boomerang for the manufacturers.

How to Make Mill Work Popular

The serious shortage of textile operatives, which promises to become greater when the mills now under construction are started, is forcing English mill owners to study the living conditions among their employes with the object of making mill work more attractive. The situation is the subject of a paper by J. A. Schofield, read before the British Association of Textile Works, and printed in this issue. Mr. Schofield paints a dark picture of life as an English mill worker and suggests a variegated lot of remedies for existing evils, but he puts the soft pedal on what the workers who are invited into the mill, will regard as the main inducements, namely—higher wages.

Without an increase of wages the British "young folks" will remain away from the mill and "the cheap foreign workers" will pass England by and continue on their way to America in their search of higher wages. If the Lancashire mills cannot afford to pay a wage that will attract the workers, then of course the cotton manufacturers of Lancashire must submit to a check in the development of the industry in that county. This might be a hardship to a comparatively few in that locality, but it would have its compensation in a wider distribution of cotton manufacturing throughout the world. The home market absorbs only 20 per cent. of the cotton goods made in Great Britain, while the remaining 80 per cent., which in 1911 amounted to $583,534,027, forms one-third of the total exports of manufactures from the United Kingdom. Practically all of the British cotton industry is located in Lancashire, with its population of 4,825,000 within an area of 1,880 square miles. And the living conditions which Mr. Schofield describes are largely the result of this excessive concentration and specialization of industry.

If we turn to the countries in which British cotton goods are consumed we find a very different situation. India, for example, in

1911 imported from Great Britain $141,306,303 worth of cotton goods, or one-quarter of the total British exports of that class of merchandise. India has a population of approximately 294,000,000, of whom 192,000,000, or 65 per cent., are engaged in agriculture. The country rests constantly under the shadow of famine, and the following extracts from a letter dated Oct. 3, 1912, at Ahmednagar, signed by the Rev. R. A. Hume, and published in a recent issue of the Springfield Republican, show the condition even now:

> The price of grain is as high as it was in the worst days of the famine which affected 60,000,000 of people 12 years ago. There is little work and almost everyone is discouraged. The official report states that since January 257,596 cattle of all sorts have died in this one district. In the whole district and in this city the water supply is quite scanty. . . .
>
> For weeks the highest government official has been reporting that "serious famine is imminent." Yesterday he telegraphed to government asking permission to open test relief works. I anticipate that permission will be received, and that within a few days large numbers will be on such works. . . .
>
> Daily and hourly distressed people are at our doors. Some want a little help to enable them to go to Bombay in the hope of finding work there. Others need help to care for sick and feeble members of their families. Others must be helped to go on to government relief works and kept alive till the first payment is made.

The pressing need in India is a diversification of industry by the development of manufacturing, but this is prevented by the system of free trade which England makes compulsory. A revenue tariff of 10 per cent. is imposed on Indian imports of cotton goods, but Great Britain deprives that rate of a protective value by placing an internal tax of 10 per cent. on the products of Indian cotton mills. So strong has the protectionist sentiment in India become that the Indian cotton manufacturers have established a bureau in London from which to carry on a campaign for protection to Indian industries. Their case was recently stated in the "Manchester Guardian" by Jamsetji A. Wadia, an Indian cotton manufacturer:

> In my opinion a 10 per cent. import duty on your (English) goods would make a clean sweep of three-fourths of the textile trade you are carrying on with India. . . . India's economic condition will not materially improve unless we have industries, and no country in the world, including England, has had industries without some degree of protection. Lancashire needs it even now, and Lancashire has it by compelling India to be the hewers of wood and drawers of water for her industries. . . .
>
> The Indian spinning mills have in the last ten years just covered expenses, while the spinning and weaving mills have made a gross profit of 10 per cent. without allowing for depreciation, or a net profit of about 5 per cent., which could hardly justify any investors in putting their money into such concerns. What have Lancashire profits been in the same period? This small and struggling industry you in Lancashire want to throttle in order to keep the Indian market for yourselves. . . .
>
> How can anyone talk of freedom when one of the parties is held in fiscal bondage? Ours is a forced trade. We are obliged to sell that which under judicius help we would like to retain. We are obliged to buy that which with some help we could make ourselves.

India and Lancashire afford a striking contrast. One country evidently has too much cotton manufacturing, the other has not enough. A protective tariff in India would do much to remedy the evils in both countries. It would check the overexpansion in Lancashire, and make it possible for the Indians to develop a home industry to supply their own wants. At present India is illustrating one of the following propositions by Abraham Lincoln; with a protective tariff she would illustrate the other:

> When we buy manufactured goods abroad we get the goods and the foreigner gets the money. When we buy the manufactured goods at home we get both the goods and the money.

Colonial Cotton

A conference was recently held at Berlin under the auspices of the Department of the Interior to consider the status of cotton growing in German colonies. The committee having the work in charge presented the following table showing the production of cotton in bales of 550 pounds by the colonies of the various European countries during the past three years, the figures for 1912 being estimates:

	1910	1911	1912
English	32,300	44,500	58,000
German	4,400	6,400	11,000
Italian	2,400	3,600	4,800
French	1,400	1,909	2,700
	40,500	56,409	76,500

The committee stated that by guaranteeing a minimum price to the native grower of cotton the industry had been firmly established in German East Africa and Togo.

The free distribution of cotton seed and the giving of prizes for the largest and best crops had also served to make cotton growing popular with the native African. The completion of colonial railways supported by government subsidies is expected to contribute to the rapid development of cotton growing. The committee call attention to the danger of depending on America for a supply of raw cotton and closes with these words: "Cooperation for development of our colonies for the production of raw materials and the marketing of finished products is a national duty of commerce and industry."

TARIFF REVISION HEARINGS

The Committee on Ways and Means decided on December 11 by a unanimous vote to grant hearings on the revision of the tariff to all persons who desire to be heard. The following statement was issued by the committee, giving directions to those who intend to appear at the hearings:

Persons desiring to be heard should apply to the clerk of the committee previous to the date set for the hearing, to be assigned time on the program for that day. In making such application the following information should be given:

Name; permanent address; temporary address in Washington; person, firm or corporation represented; paragraphs of the act concerning which testimony will be given; brief mention of attitude to revision of the tariff; and the amount of time desired.

In addition to this the person intending to give testimony should forward in advance to the clerk a copy of his brief and of any documents he desires to file with the committee.

In preparing this brief, it is desired that the following outline be observed:

1—State by items and paragraphs the changes in duties recommended, assigning with each instance reasons for recommendations.

2—Estimate the increase or decrease in imports by paragraphs and items which would result from suggested modifications of duties.

3—Explain methods or experience relied upon in making estimate.

4—Suggestions as to changes in phraseology of present tariff law.

5—Suggestions as to the betterment of the administrative features of the present law.

The committee will meet at 10 A. M. and 2 P. M. in the hall of the House office building. The schedules are to be considered in alphabetical order on the following dates:

Schedule A—Chemicals, oils and paints, Monday, Jan. 6.

Schedule B—Earths, earthenware and glassware, Wednesday, Jan. 8.

Schedule C—Metals and manufactures, Friday, Jan. 10.

Schedule D—Wood and manufactures, and schedule L, silk and silk goods, Monday, Jan. 13.

Schedule E—Sugar and manufactures and schedule H., spirits, wines and other beverages, Wednesday, Jan. 15.

Schedule F—Tobacco and manufactures and schedule M, pulp, paper and books, Friday, Jan. 17.

Schedule G—Agricultural products and provisions, Monday, Jan. 20.

Schedule I—Cotton manufactures, Wednesday, Jan. 22.

Schedule J—Flax, hemp and jute and manufactures, Friday, Jan. 24.

Schedule K—Wool and manufactures, Monday, Jan. 27.

Schedule N—Sundries, Wednesday, Jan. 29.

Free list, administrative features and miscellaneous, Friday, Jan. 31.

BUYING WOOL IN THE SOUTHWEST

Boston, Mass., Dec. 28, 1912.

Editor Textile World Record:

Having for many years made annual trips to the Southwest for the purpose of buying wool, it occurred to me that your readers might be interested in an account of some of my experiences. On my first trip I had but an imperfect idea of the vast areas of land stretching out beyond Kansas, with her broad acres of alfalfa and wheat and large herds of cattle fattening for beef. The Paton Pass is 7,200 feet above the sea level and this high altitude affects one with a weak heart. This pass leads into New Mexico where thousands of acres of grazing lands lie each side of the railroad. A wool buyer coming from the East for the first time has much to learn. One of the first requirements is a knowledge of the Spanish language. The preparation for the inland trip requires some time and experience. A good team of mules is essential, for horses lose flesh if they do not get hay. A mule team will often cover 75 miles a day and come back in good condition. A trip like this requires a good Navajo blanket for each man, a frying pan, coffee pot, plenty of bacon and eggs, beans and matches. Speaking of matches recalls to mind a certain buyer who did not smoke. He had traveled from morning until noon when he came to one of the widely separated water holes which supply an essential part of the diet of a horse. One

man took care of the team while another looked around for wood to make a fire for the noonday meal. They found to their sorrow that there were no matches so they had to content themselves with a glass of whiskey, called snake bite, and procede on their way. It is often possible when traveling all day to look back and see the place where one started from in the morning.

The preparation for the night is a very welcome task and when the mules are unhitched they roll around and seem to enjoy their freedom as much as they do their oats. Give the mules plenty of oats and water and put chain hobbles on their front feet so they will not go far when grazing and they give no further trouble. Then build a fire, take out the chuck box, prepare the bacon, eggs, beans and coffee and you have a meal that is fit for a king. A canvas is spread on the ground with blankets laid over it and your coat for a pillow. Then with the stars looking down, the end of a long day is near. Traveling like this for two weeks out in the clear open air makes one feel like a new person, for the appetite is sharpened by the cedar wood used for firing, giving a rich flavor to the food.

The Mexicans are a very generous and hospitable people and are always willing to share what they have. Their fare consists mainly of beans, goat meat and coffee. It is well to bring your own bedding and provisions for a two weeks' trip. One is awakened in the morning by the tinkling of bells on the flocks of goats going to the mountains to graze. These little animals are the main providers for the family, supplying meat, milk and cheese. Continuing on our way we see the herder's camp in the distance and arrive just as the cook is preparing the morning meal, which consisted of raw mutton cut up in pieces, raw potatoes and onions all put in a frying pan with some lard and allowed to simmer over a low fire until the mixture hardly warmed through: This with cheap coffee constitutes a meal. The bread used is made in the same way as griddle cakes and called torties.

The sheep are driven into corrals next to the shearing pens. Each man is given a round check for each sheep he shears. Three cents is paid for each sheep and a shearer gets about 55 cents for a day's work. The fleeces weigh about 6 1/2 pounds. The fleeces are handed to a man who does the bagging and the wool is then ready for the long trip to town or to the nearest railroad station, where it is either sold to the scouring mill or shipped East in the grease. Trading with the Mexican grower at the ranch is a tedious job, as he has a bill to pay for his six months' provisions bought on credit, which ties him up. The scouring mills are well equipped with modern machinery and use the best of potash soap. The climate being dry the wool is very white and free from seeds. The annual wool buying trip is looked forward with pleasant anticipation. It is interesting to watch each year how the land is cut up more and more into small ranches, with the flocks growing smaller and the sheep larger. The barren land is being rapidly brought under irrigation and the crops are increasing each year. New Mexico is well named the land of sunshine, for we certainly have our share of it. The mountain streams abound with trout and wild turkeys are found in abundance. It is a delightful place to spend a vacation. The nights are cool and there are no mosquitos to annoy the visitor. William White.

THE SOUTHERN NEW ENGLAND TEXTILE CLUB

The presence of Louis D. Brandeis of Boston, who has taken such a leading part in the agitation for better railway service in New England, brought out a large number of guests at the monthly meeting of the Southern New England Textile Club held at the Crown Hotel on the last Saturday in December. Two hundred members and guests attended, including a number of prominent manufacturers from Rhode Island and Massachusetts.

The imports of German cloth into England is some $15,000,000. Germany is the principal export destination for English worsted yarns and tops, of which German manufacturers regularly consume some $30,000,000 worth a year.

Manila Hemp and the Export Duty

By Harold M. Pitt,
Chairman Economic Committee, Manila Merchants' Association

Due to the fact that the Philippines have a monopoly in the production of Manila fiber that product was early selected by the Spaniards as a fruitful source of revenue and was subjected to a comparatively high export duty.

On July 4, 1901, the United States Philippines Commission assumed the government of the islands, succeeding the military government, and immediately thereafter began the work of organizing civil government throughout the archipelago. Acting under authority of the President of the United States and under the direction of the Secretary of War, the Commission, of which President Taft was the head, enacted, on Sept. 17, 1901, a customs tariff law for the purpose of raising revenue to support the newly formed Insular Government. The provisions of this law were in many respects the same as those of the Spanish law that had been in force prior to American occupation and they embodied the export duty features which were deemed necessary if sufficient revenue were to be provided. The only notable change from the Spanish law was in greatly reducing the rates of import duty on foodstuffs. Thus the duty on flour was cut from $1.88 to $0.50 per 100 kilos; on unhusked rice, from 59 to 40 cents; on husked rice, from 63 to 50 cents; on hams, smoked and cured meats, etc., from $9.13 to $3.00; on lard, from $9.13 to $1.60; and on salted meat, from $4.82 to $0.75. Export duties were fixed in the law referred to, as follows:

FILIPINO SEPARATING HEMP PLANT FOR STRIPPING

Sec. 13. On the following products of the Philippine Islands, when exported therefrom, there shall be levied and collected on the gross weight thereof export duties as follows:

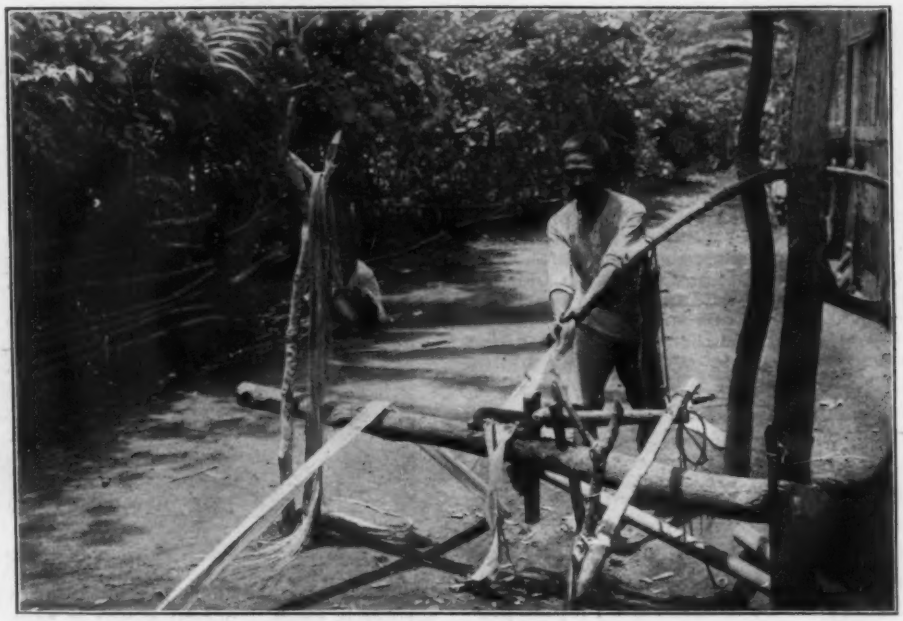
	per 100 kilos.
398 Abaca, raw or wrought hemp	$0.75

399.	Indigo	.25
400.	Indigo employed for dywing (Tintarron)	.025
401.	Rice	1.00
402.	Sugar	.05
403.	Cocoanuts, fresh and dried (copra)	.10
404.	Tobacco, manufactured, of all kinds and whatever origin	1.50
405.	Tobacco, raw, grown in the Province of Cagayan, Isabella, and New Biscay (Luzon Island)	1.50
406	Tobacco, raw, grown in the Visayas and Mindanao Island	1.00
407.	Tobacco, raw, grown in other provinces of the Archipelago	.75

In accordance with official regulations metric scales and measures alone are used now throughout the archipelago. Weights of hemp are given in kilos which are then reduced to piculs, as all quotations and transactions are still on the basis of the picul, all of which goes to show that you can change the form, but you cannot alter the substance.

Hemp was the main revenue producer under this tax and was yielding from $750,000 to $1,000,000 a year to the government. One of the prime motives of the Commission when establishing the new regime was to avoid the introduction of any strange forms of taxation until the country became tranquilized and there had been awakened among the people a measure of appreciation for the purpose of the United States and a desire to cooperate with the American officials. Thus the Commission was influenced to reenact, as far as was practicable, the revenue measures to which the people were accustomed, and this accounts for the continuance of a form of direct taxation that has always been held as repugnant to American ideas.

On Dec. 18, 1901, the House of Representatives passed a measure giving full force and effect to the act of the Philippines Commission referred to and providing also, among other things, for the collection of regular rates of duties in the Philippines on American products imported, and in the United States on Philippine products imported, with the important proviso that such import duties collected both in the United States and the Philippine Islands should be covered into the treasury of the latter. This bill went to the Senate where it was re-



FILIPINO STRIPPING HEMP, WITH GOOD VIEW OF KNIVES

ported back from the committee on January 20, 1902, with a number of amendments. As passed by the House, section two of the bill read as follows:

That on and after the passage of this act there shall be levied, collected, and paid, upon all articles coming into the United States from the Philippine Archipelago, the rates of duty which are required to be levied, collected, and paid upon like articles imported from foreign countries.

In Senate Committee the following amendment was added to this section:

Provided: That upon all articles the growth and product of the Philippine Archipelago coming into the United States from the Phillippine Archipelago there shall be levied, collected, and paid only 75 per cent. of the rates of duty aforesaid; And provided further,

That the rates of duty which are required hereby to be levied, collected and paid upon products of the Philippine Archipelago coming into the United States shall be less any duty or taxes levied, collected and paid thereon upon the exportation thereof from the Philippine Archipelago, as provided by the act of the United States Philippine Commission referred to in section 1 of this act, under such rules and regulations as the Secretary of the Treasury may prescribe, but all articles the growth and product of the Philippine Islands now admitted into the ports of the United States free of duty and exported from said Islands for use and consumption in the United States shall be hereafter exempt from any export duties imposed in the Philippine Islands.

With unimportant changes in text the bill containing this provision became law on March 8, 1902. The export duty remission clause of the bill is repeated in "The Philippine Tariff Revision Law of 1905" and is continued also by "The Tariff Act of 1909."

The purpose of this section as a whole would appear to be to assist the Filipino producer by extending to him advantages in the American market. It has been claimed, on the other hand, that the reduction of duties in the United States on Philippine products was calculated as an offset to the remission of export duties in the islands on products shipped to the United States for consumption there, as it would be a practical impossibility, and has been so proven, for the Filipino grower to realize any material benefit from it. Authorship of this very important amendment is credited to Senator Hansbrough of North Dakota.

The statement has been made, and with apparent justification, that it was designed to cheapen the cost of binding twine to the American farmer of whom Senator Hansbrough's constituency was largely composed. In this it has partially succeeded, for although binding twine is manufactured principally from Mexican sisal, yet there is a certain relation existing between Manila

A NATIVE HEMP PRESS IN THE PHILIPPINES

hemp and sisal whereby the price of the former is made a potent factor in regulating the price of the latter. The United States uses about nine-tenths of the total output of sisal and nearly all of it goes into binding twine. Manila hemp, which goes by the designation of "Manila" with the trade, is rated at 6 1/2 or 7 in tensile strength as against 5 or 5 1/2 for sisal. When the difference in price of the two fibers is reduced below a proportionate level it becomes cheaper to use Manila twine than the sisal. While the quantity of twine made of Manila is small when compared to the sisal, the divergence is due entirely to the relatively lower price of sisal. Thus the farmer benefits by any reduction in the price of hemp

through the effect such reduction has in lowering the price of sisal.

Of course, it is possible that those responsible for the amendment entertained the idea that the Filipino hemp planter would get the benefit of this refund or export duties, but this does not seem probable. Neither could the Insular Government benefit in any way from it for the reason that the amount of such refund was to be taken directly from the insular revenues, which thus had to be recouped from other sources, which simply meant additional taxes under another form. Still less probable is the assertion made by Hon. Jas. H. Blount, a former volunteer officer and for a time a judge in the Philippines, in a recent book on the American occupation of the islands. His statement in effect is that the legislation was enacted in the interests of American cordage manufacturers, particularly the International Harvester Co. The truth is that this concern was not organized or even in process of organization at the time the legislation was enacted, and cordage manufacturers then in business claim they were not advised by the committees of Congress with regard to the matter and that had they been consulted they would not have been disposed to favor the legislation.

As the law has worked out in operation, practically the entire benefit of the refund has gone to the American consumer. Competition among the cordage manufacturers has been so keen that the three-eighths cent a pound, which is what the export duty amounts to in round figures, is reflected in all private quotations on Manila cordage and the result of this cut has often been to force a greater reduction in price than is warranted by the cost of the fiber.

In some instances the refund has been used by the local exporter, cooperating with the American manufacturer, to offer an advanced price to the Filipino grower for special grades of hemp, and in such cases the benefit has been divided. But these instances are not common and occur only when there is a pronounced scarcity of hemp of the better grades. As a rule the grower receives no benefit from the refund, while it results in a loss of revenue to the islands of $7.50 a ton for all Manila hemp shipped to and consumed in the United States. From the following table an exact computation can be made of the amount of this refund from 1902 to 1911. Eight bales are counted as one ton. There is a slight excess of weight in bales to cover possible shrinkage.

IMPORTATIONS OF MANILA INTO THE UNITED STATES

Year	Direct from Philippines Bales	Via Europe Bales	Total Importations Bales
1892	204,514	121,700	326,214
1893	367,785	85,259	453,044
1894	239,872	58,426	298,298
1895	319,106	50,817	369,923
1896	295,503	115,282	410,785
1897	426,827	30,023	456,850
1898	326,212	65,708	391,920
1899	300,202	90,083	390,285
1900	218,684	95,039	313,723
1901	158,004	256,037	414,041
1902	305,790	112,557	418,347
1903	518,984	13,188	532,172
1904	377,035	43,538	420,573
1905	517,826	12,261	530,087
1906	384,470	12,908	397,378
1907	507,054	6,581	513,635
1908	401,792	675	402,467
1909	775,643	10,563	786,206
1910	594,724	2,736	597,460
1911	554,912	986	555,898

This statement shows also the decrease that has taken place in the purchases of Europe (London) of Manila hemp for the United States market since the refund measure was enacted.

Mr. Blount in his book makes another wild statement to the effect that the law under discussion has caused the value of Manila hemp to be cut in two—has brought about a loss of 50 per cent. to the Filipino planter in the value of his hemp. Such statements are clearly unwarranted by the facts and suggest a desire on the part of whoever makes them to prove a case regardless of the facts rather than to give the results of an impartial investigation. In order that a better idea may be had of the elements that have combined to affect the price of hemp, both before and since American occupation, the following table is reproduced:

PRODUCTION OF MANILA FIBRE SINCE 1892

Year	Bales	Average Market Price Current Manila		Stocks in Philippines Dec. 31
1892	760,127	7.03	New York	
1893	770,231	6.04	"	
1894	792,270	5.23	"	
1895	801,753	4.34	"	

1896	809,432	4.35	New York		
1897	875,433	3.82	"		
1898	742,204	6.27	"	Spanish War	
1899	492,761	9.42	"	Closed Ports	
1900	940,076	10.70	"		
1901	773,073	8.84	"		88,000
1902	899,528	10.36	"	Less Rebate	153,000
1903	1,004,046	8.77	"	"	101,561
1904	904,636	9.34	"	"	80,838
1905	905,079	9.60	"	"	102,458
1906	784,865	9.97	"	"	63,432
1907	961,276	8.98	"	"	129,359
1908	1,053,007	6.39	"	"	153,422
1909	1,278,548	6.33	"	"	160,160
1910	1,339,553	5.73	"	"	190,335
1911	1,264,857	5.13	"	"	263,336

to a lower figure than had been recorded in any of the six years preceding while the price immediately advanced on the New York market from 3.82c. to 6.27c. per pound. In 1899 there was a still further slump in production which was met by another pronounced increase in price.

From this time on a fair measure of production was maintained except in 1906 when it received a check due partly to drouth and in part to labor conditions. But the recovery was prompt and since 1908 the output has been well above the million bale mark with a tendency to increase. This resulted in an over-supply, the effect of which is reflected in the New York price for current Manila. There has, however, been a recovery in 1912 from the low range of prices of 1911, and the fiber now approaches the high water values of the early years of American occupation which are far above the prices realized in Spanish times. A probable shortage, due in part indirectly to low prices of the past year or two, which tended to check production, and in part directly to a protracted drouth in the fall of 1911 and spring

ROOFED CARTS LOADED WITH HEMP AND DRAWN BY THREE CARABAOS

It will be noted that from 1892 to 1897 (the period of Spanish control), there was an uninterrupted increase in production from 760,127 bales to 875,433. Also that there was a regular and consistent decrease in the New York price, but in much greater proportion than the increase in production. This denotes an extremely sensitive market that bears no relation whatever to cost of production and is influenced solely by the supply. Thus production increased but 15 per cent. during the period quoted while the price fell off 45 per cent. In 1898 the natural disruption of affairs incident to the change in sovereignty caused a drop in production

of 1912, will doubtless maintain firm prices in the hemp market for at least a year to come.

It is interesting, however, in this connection, to compare the lowest price for hemp since American occupation, which was recorded in 1911, with the level of prices that obtained during the years immediately preceding American occupation. The average market price in New York for Current Manila for 1895-6-7 respectively was 4.34c., 4.35c. and 3.82c. per pound. This was with a production ranging from 801,753 to 875,433 bales. In 1911, with a production of 1,264,857 bales the corresponding price was 5.13c. per pound. This shows that there has been a material enlargement of the world's consuming capacity and 1,300,000 bales were absorbed at better prices in 1911 than 875,000 bales fetched in 1897. The facts here presented effectively dispose of Mr. Blount's statements.

And now as to the actual effect of the remission of the export duty on Manila shipped to the United States and consumed there, and the justification for the continuance of the law as applied to this product. In the first place the export duty was imposed because the Insular Government needed the revenue that it was to yield. The United States consumes approximately one-half of the fiber exported so that the effect of the law of Congress, which quickly followed the Commission's act, was to cut in two this anticipated revenue from hemp exports. As there has been no duty imposed in the United States on unmanufactured fibers, there could be no compensation for this loss by the return of duties collected in the United States and covered into the Insular treasury, as would have been the case with sugar or tobacco that might have been exported there, hence this remission of duty on hemp was not for the benefit of the government of the islands, but on the contrary resulted in a direct loss to it. Neither could it benefit the grower, for the export duty enters as a permanent factor in the local price of hemp. The American cordage manufacturer is the one to whom the refund goes, but the facts show that he passes it on to the consumer. The question resolves itself into the right of or justification for the American consumer's taking this benefit at the expense of the Philippine government.

When this law was first enacted the terms of the Treaty of Paris, then in force, were such as to prevent the immediate establishment of free trade between the United States and the Philippine Islands, because of the provision giving to Spain the same privileges in the trade of the islands as the United States assumed. The termination of the life of that provision was signalized by the enactment into law of the Tariff Act of 1909, which gave to United States products free entry into the Philippine Islands and to Philippine products a sort of limited free entry into the United States. The benefits to be derived from this legislation were supposed to be reciprocal, but as a matter of fact the United States has much the best of it for the reason that it gets in full the benefit of a remission of the duty on all of its products exported there, and because the Philippines tariff is a revenue measure, nearly everything the islands import pays duty except when brought in from the United States.

The tariff law of the United States is essentially protective and admits over 50 per cent. of the imports (nearly all raw products) free of duty. These are commodities that the United States either does not produce at all, or does not produce in sufficient quantities to supply domestic requirements. As a result of this the only articles of Philippine origin imported into the United States in quantities, that realize any benefit by reason of free access to the markets there, are sugar and tobacco, and there is a restriction limiting the amount of these that may be imported duty free. Thus if there existed in 1902 any obligation to remit the export duty on Manila hemp as compensation for a reduction in customs duties in the United States on Philippine products, that obligation exists no longer and there is no justification whatever for continuing this discrimination at the expense of the Philippine government. Obviously there is one of two things to do—abolish the export duty on hemp or abolish the pro-

vision of the law that grants a refund of export duty on hemp shipped to and consumed in the United States.

Government officials in the islands claim that the revenue derived from the export duty on hemp shipped to countries other than the United States is needed and that the industry can well afford to pay it. There is no question but that the islands need all the revenue they can get. Many projects of vital importance to general development and the economic progress of the people have to be postponed or curtailed because of lack of funds. But there is a serious question as to the justice of this direct tax on an industry one-half of the returns of which is turned over to American cordage manufacturers to keep or distribute among the consumers as they see fit. The subject is one that has been discussed fully among business men in the islands and the concensus of opinion is that the simplest way to handle the proposition would be to abolish the export duty as to Manila hemp. Some insular officials will object to this because of the consequent loss in revenue. In this connection, however, it might have stated that the principle involved should be the first consideration.

An English View of an Ad Valorem Tariff on Wool

I.—Worsted

By Our English Correspondent

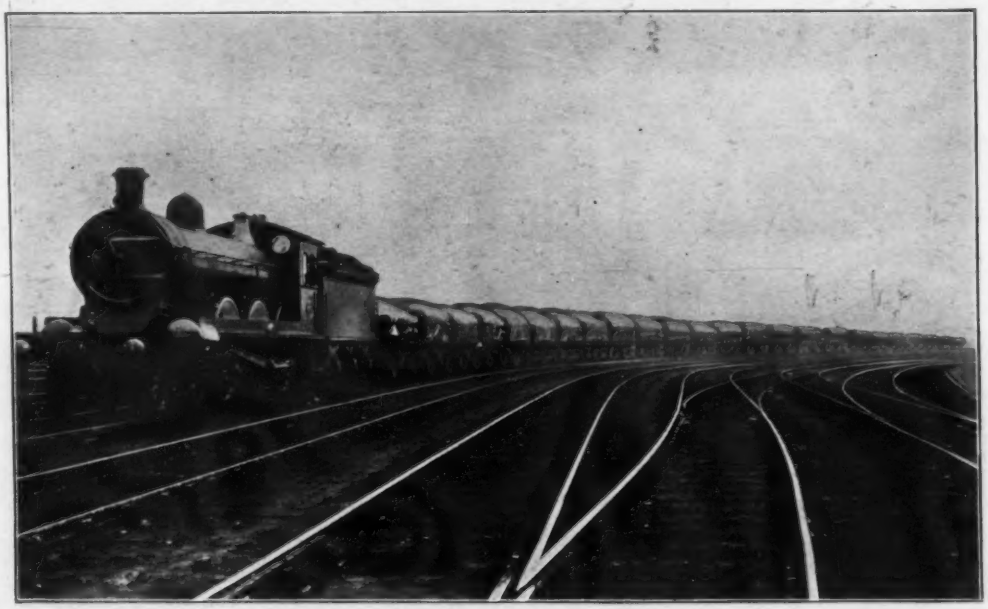
It is instructive, even if not necessary, to recall that England was perceptibly ill at ease about its wool taxes a century since. In response to agricultural clamors an import duty of a cent a pound was imposed in 1803 and raised approximately 1 1/2 cents ten years later. Then in 1816 the tariff was revised and became twelve cents on foreign and two cents on colonial wool. In the revision of 1825 colonial wool was put on the free list, foreign wool was charged two cents or one cent, according to value, and the absolute prohibition upon the export of English wool, in force since 1660, was withdrawn in favor of a small export tax. In 1844 the wool duties were abolished altogether and the British wool manufacturing industries started on the upyard path leading from an annual consumption of 188 million pounds of wool in 1840-44 up to the 876 millions of 1911. The ashes of the past need not be sifted too closely. Suffice it to say that in the face of the discouraging import taxes wool imports still increased and on the whole steadily. On the withdrawal of the prohibition to export wool, which had been dictated by desire to retain English wool for the English manufacturer, exports of wool fabrics increased immediately and domestic wool production began to increase also. These petty movements are dwarfed into insignificance by the great and fairly gradual and consistent increase in wool consumption to the height already named.

Such a lead-in does not occur every century and it is proper to inquire how it happened and whether these mighty results followed as a consequence solely of the abolition of tariffs on wool and woolen goods. Other momentous causes were at work. Steam was still young, the machine comb was newly coming into operation, the Australian pastoral industry was at its birth, the Continent of Europe was bled white with long wars, the engineering and inventive talent needed to utilize the new resources was at hand, workers schooled in the ways of hand combing, spinning and weaving were ready. It was no disadvantage that England should be the home land of the Australian settlers and that the absence of tariffs should lay every source of material open without impediment; but one cannot attribute to tariff policy alone the whole of this development. So much by way of retrospect.

Supply and Demand

The question is of what will happen in the future in an America that is seemingly dis-

posed to lower prices to the consumer of woolen goods at the expense of the revenue now derived from taxing imported wool. On some points room is left for two opinions, but on another point there is room for only one. To cheapen wool is inevitably to popularize its use and promote greater consumption, and one of the things clearly foreseen in Bradford is a larger American demand for raw wool. Coming on the head of a demand which is already increasing, this means the creation of a higher average level of wool prices throughout the world. This consequence is regarded, not as a temporary, but as an abiding one, and in view of the laws of economics, it is certain that to cheapen wool in America by the removal of artificial charges means some increase in the natural or market price. The prospective outcome is not unwelcome to dealers and should not be so to farmers.



A WOOL TRAIN. HULL TO BRADFORD LOADED WITH AUSTRALIAN WOOL

American demand affects prices already by sending up to a disproportionate height such classes of wool as fit the arbitrary conditions of the grease-weight tariff. Broadly it affects the prices of those merinos that can be depended on to yield 50 per cent. or more of clean wool, and the crossbreds that will yield 65 or preferably 70 per cent. The well known fact is that the American buyer has to ask two questions about every parcel of wool: (1) Will it suit the purpose? (2) Will it suit the tariff? Wool that does not suit the purpose is useless in any case, and wool which does not square with the most favorable tariff conditions is out of the question for that reason alone. Grant that the grease basis is abolished and that the duty is made ad valorem and falls directly on the price, the buyer is left with one problem instead of two. "Will it suit the purpose?" is then the sole remaining consideration.

Automatically this widens the field of selection. No longer limited to a narrow range the buyer may pick where he will, seeking nothing but his own advantage. The chase will assuredly lead him into new quarters and lead to acquaintance with new qualities of wool. There is a reaction between supplies and requirements and, in time, access to new forms of wool may be depended on to arouse interest in new classes of goods for which varieties hitherto forbidden prove especially suitable. It would not be impossible to name a dozen new styles of fabric that have come into

existence, not because of any long-felt want for them, but purely because there was material available from which they could be manufactured and other styles could not. As a leading instance, look at the introduction in 1839 of alpaca which Titus Salt found he could utilize upon a cotton warp. The illustration is chosen for the sake of its boldness and in a less striking way instances are always occurring. Worsted serges of unsuspected cheapness found a sale in England as soon as a surplus of New Zealand crossbred began to weigh the market down. The German market developed a taste for harsh cloths made from the rejected bellies of fleeces the bodies of which had been sent from Argentine to America. But it is unnecessary to labor the point that supply influences demand.

DISCHARGING WOOL FROM SHIP

CLEAN WOOL PREFERRED?

If American buyers are so rooted in conservatism as to decline to consider anything but the wool of lowest shrinkage, even after the necessity for suiting the tariff has passed, they will neglect their opportunities. It is not the writer's business to prophesy as to the actions of men who have full liberty to please themselves. It is, however, permissible to ask what was done in 1895-97 under the free-wool tariff. Did Americans in point of fact bestow their attention on the greasy, burry and sandy wools which yield profit to someone, or did they devote themselves wholly to picking up clean lots and especially the scoured wools which before had been banned? Buyers presumably know, and know also how much there is in anticipation, expressed in some Bradford quarters, that history will repeat itself in this respect. The considered opinion of one who had every opportunity of knowing the New York wool market in the Wilson days is that the principal effect of applying an ad valorem duty would be to increase the American consumption of wool which has

been scoured. The matter is not one of hope or regret, but of cold conviction, and it deserves acknowledgment whether or not it commands assent. The period of free wool was not a long one, fixed habits are not shaken off in a day and it cannot be said that the attitude would not have changed in time or will not change in future.

Admittedly the business of handling lots of which no average judge knows the yield is a risky one. The best methods of sorting and scouring or extractions take time to learn and are best done by those who have given the matters most study. It need not be pretended that England is a perfect exemplar, for Verviers is before Bradford in the extraction of burr in such wools as "B. A.," and Mazamet leads in the art of putting skin wools into presentable shape. Countries have their own specialties, usually the product of exceptional circumstances, and particular firms have their smaller specialties. Thus it is by no means everybody in Bradford who cares to undertake the job of making the best out of dirty Cape or West Australian. When the choice presents itself between a shrinkage one can gauge and another that is lost in doubt, the easy course is taken, although the doubtful parcel may be the more profitable in practiced hands. This is so with men who get sorters and scourers for less than the American scale of wages and may intelligibly be the same where expenses are high.

THE RAILWAY CO.'S WOOL WAREHOUSE AT BRADFORD

THE EXCLUDED SUPPLIES

As a first effect the removal of the excessive handicap on scoured wools can be depended on to revive attention to them. The quantity of scoured Australasian going into the London sales is rather under than over 200,000 bales and is roughly one-fourth of the whole. Of scoured Cape there are 10,000 bales or so a year in the catalogues. In general it is wool which by reason of its de-

fects would not fetch the best price in the raw state. Colonial scourers have seen their chance of getting the wool cheap at first hand and of dealing with it to befit it for some more lucrative purpose than common topmaking. Scourers in the colonies will not desist from treating this stuff if they share the expectation of new American attention and hence of more competition for their produce, and one may look for the appearance of quantities larger in the future than in the past. Colonial scoured wools rank at or near the top of the list of wools whose price may be expected to advance under an ad valorem rearrangement of the tariff. Some of them, like New Zealand merinos scoured, have especial virtues for carded woolens inasmuch as they carry a large proportion of waste with credit to the goods.

In the London catalogues there are also 50,000 to 70,000 bales of Australian slipes, being skin wool pulled after the liming process. The chief function of this, as of scoured, is to make tops in blend with as much greasy wool as is needed to redeem their harsh handle. Then there are all the Australian and Cape greasy merinos, and New Zealand greasy crossbreds of heavier shrinkage than suits the present specific tariff. These include the fleeces now rejected in "casing" wools for America and the offsorts or skirtings which at present fall prey to the topmaker who knows how to construct a blend; or otherwise go to make blends of carded woolen. Outside the London catalogues are the imports of half a million bales of River Plate wool, which also include American leavings. There are 50,000 or more bales of Punta Arenas and Falkland wool, also helpful in lightening blends. The 150,000 bales of East India and 30,000 of Persian and 50,000 or so of Mediterranean, Portuguese and Russian wool, are of more service in carpet yarn or in making blankets or belting than in making cloth for personal wear. The Liverpool and London Low Wool Sales are foraging grounds for specialists in refractory materials, both for combing and clothing, and only a part of the supply is accessible to the American importers at present.

The ban on scoured wool puts out of reach the supplies of excellent pulled skin wools prepared in Mazamet. French conditioning-house returns prove that their supply exceeds 40 million pounds and import statistics show that British takings are less than half this amount, but the consumption by Bradford topmakers is large. Of all standard sorts the production is regular and delivery be had promptly in large lots "Sobras" or burry parcels come forward only in limited quantity. The wool is pulled after the fleece has been sweated, the merino is sulphur-stoved and as coke fires are used for drying a sulphury smell pervades all this wool. There are prejudices of an unfounded kind in some quarters against all wools not removed by shearing the live sheep, but there is no necessary physical difference between fleece and skin wool. Apart from considerations of handle the chief distinction is that pulled wools have less length than full-grown fleece of the same breed and that they give the tops in which they are used a brownish cast. The standard Mazamet production is "Thirds" Buenos Aires equivalent to Bradford 46s to 50s quality or high quarter blood. "Firsts" are roughly half-blood or 58s, "Seconds" are three-eighths blood or 56s and "Fourths" are 44s to 46s or quarter blood. The sorts are divided into "longs" and "half-longs" and into "earthy" besides. The merinos are Buenos Aires, Australian and Monte Video.

SPECIAL WOOLS AND SPECIAL PURPOSES

An extensive acquaintance with the supplies of British wool may be assumed in face of the wide range of regular buying. The general lightness of shrinkage, the spring and luster of the wool make the clip of 136 million pounds particularly appreciated. The present buying ranges over Downs, Leicesters and half-breds, lusters and demi-lusters, down to the Scotch Blackfaced, of which the fleeces—when searched thoroughly in sorting—are found to contain a proportion of excellently soft wool. Little can be said of them to add to the general knowledge.

Downs or short wools used mainly for knit goods and flannels have tweed-making virtues which Irish manufacturers especially recognize. Pure lusters, for linings and braids and mixing with mohair and alpaca are grown solely in the counties of Lincolnshire, Yorkshire and Nottinghamshire, which alone are congenial to this fleece. Locality counts for something in production, for it has not been found practicable to grow Cheviot in its higher perfection away from the Cheviot Hills. The production is relatively small and it falls to Scotch manufacturers, who are enabled with the real cheviot to produce results which their rivals in Yorkshire fail to duplicate with Colonial wool. There are local wools in Ireland that are appropriated almost entirely by Irish mills. In Wales—where they shear lambs—there are sorts little employed for any other purpose than Welsh flannel and mountain sorts are so infested with kemps as to be more suited for extraordinary than for ordinary purposes. The matters are mentioned merely to illustrate the diversity of qualities produced in so narrow a region as the British Isles. If the fine points of difference mean nothing to the world at large, to particular manufacturers aiming at special effects they mean a great deal. In Yorkshire, as in America, there are worsted spinners who have either to have English hogg wool or to withdraw certain of their qualities of goods from the market.

By making more qualities of wool accessible to the manufacturer the Government does not ensure that he shall use them, but it at least gives him the option. The liberty is of value to the small manufacturer who is seeking out some line of his own in a direction not already occupied by more powerful rivals, and would snatch the opportunity of turning a material of special characteristics to some special and lucrative account. To the large manufacturer whose interest lies rather in the production of unlimited quantities of a staple sort of fabric, the equalization of the tariff has its boons also. He wants large blocks of wool of fairly uniform quality and to buy to the best purpose he must be in a position to bid for alternative supplies. In the world-market wools which can be made to serve for one another are not necessarily at one price at one moment. It pays the Bradford topmaker to buy non greasy, non scoured, non slips and non skin wool and accordingly as best suits him he compounds his blends with varying proportions of each and he is enabled thereby to blend and comb not only for English, but for German, Swedish, Italian, Japanese, Belgian, Dutch Canadian, Spanish and Russian spinners. To each of those nine countries Bradford sends over one million pounds weight of tops a year and to Germany it sends 16,000,000 pounds. To many other countries Bradford sends smaller quantities and it is sure that she could not do so without access to all the best supplies of practicable material.

WHY ENGLISH MILL LIFE IS UNPOPULAR

BY J. A. SCHOFIELD

A paper read before the British Association of Managers of Textile Works, Nov. 23, 1912

I have purposely refrained from any remarks re wages paid in textile trades, because I feel that the question of wages is adjusting itself through the employers and employes' unions; and because I find that the better class of workers are going to occupations other than mills, in which the wages are less, but the conditions—mental, social and physical—are better. If the textile trade in this country must grow and expand, as we all hope and strive to make it do, we shall require workers. It is a well-known fact to all of us that every available mill worker has been called up during the last year, and where the new workers are to come from to fill the mills and weaving sheds, now building, nobody knows. We shall have to do something to divert the stream from the more attractive jobs.

The general rule now of small families has resulted, and is resulting, in more consideration being given to the work or trade into which the children are being put by the parents. The old needs of large families to get a wage out of each as soon as the law would allow, is passing away with the large families. The son must have a smart job, the daughter

also a clean and dressy occupation, and they accept lower wages for these considerations. These children are very often those who have been kept at school and given a good grounding up to 14 or 16 years of age. Hence they are the most capable of understanding mechanical and technical details, and are those we most require to attend to and operate our complex machinery. We must get these young people into the trade or else make up our minds that, as the workers die off, we must either transplant the work to other countries where the conditions meet our needs, or import the cheap foreign workers, who have not the ideals of our present-day British workingman.

The growing unrest amongst all classes of workers is a good sign in many ways. It is a healthy desire for more of the good things of this life, and we need not think that it can be stilled by any plausible political program. The workers are out to get something more than 274 days' hard labor per annum.

We ask ourselves: Why is the mill not popular? A strong prejudice has hung around it for a few generations, from the early days of the factory system, when children were taken from work-houses and foundling homes, and from parents who were in jail, and bound to the employers in the old, evil, and big dividend days. It meant a low class of workers, with stunted frames, ghoulish, half-starved bodies, living in congested hovels, cellars, and homes worse than sties, whose morals were of the worst, and, for a respectable child a certain demoralization. Under-paid, under-fed, over-worked, and mentally deficient, the mill-workers were looked down upon by the agricultural workers, and the prejudice is not dead.

We know that the tales told of the awful immorality in the early factory days are used in many walks of life as tales of today. We know they are not, but, as I have had frequent evidence, the notion in the Midlands and South of England is based upon such stories as "Mary Barton," and other woeful tales told or played on the stage. Hence to have the stigma of "factory hand," card-room hand, weaver, etc., is to ask for social excommunication. Its effect on the general public is to lower its respect for the individual who is so-called. The outsider judges by appearances, and, as a general rule, says that fine feathers grow on fine birds.

The factory workers lack pride in personal dress; and the dirty, oily nature of their work, the fashion of semi-naked, slovenly, uncouth working clothes are great deterrents against the popularizing of mill work. One result of the education of the mass of people has been to enlarge their view of life and liberty; whereas the growing tendency for many years has been to reduce the mental side of mill work to the least possible fraction, and the round of duties for each worker has been made monotonous, and each trade has its routine, which—like the law of the Medes and Persians—cannot be departed from. This mechanical performance of a round of duties, after a time, resolves itself into "so many times to do it before half-past five." This weary round and common task does not stand the higher criticism of the educated mind. There are, too, the confined, limited space in which many hours are spent, the hot, steamy, humid atmosphere.

The mental sleep of the workers has caused them in the past years to take drink as a recreation, and latterly football, gambling, and picture shows—something to give a spice to life, but a bad reputation to factory life.

In homes where the heads of families are not employed in workshops or mills the early hours at which work begins are very inconvenient. The turning out at early hours on wet, cold mornings of children is one of the most popular cries of the teaching profession when they get on the war-path on the school age question, and this also has considerable weight with parents when deciding upon what to do with their children. The home habits which have been taught during the early years have to go overboard when mill life is begun. Meals are eaten from tin cans; knives and forks are a novelty; tables are not needed; cups and saucers are unknown; and food is eaten among all kinds of fluff, and in awkward, uncomfortable postures. The return to the

animal style of feeding and the fearful and wonderful foods which are eaten, do not attract the better class type of workers.

The parents of children who have been to school, and have had their faculties developed, and been instructed and educated, look for some result from all this training when the child passes from the school to the mill. But what a woeful tale is here to be told of the huge waste of effort. We know from painful experience of reading applications for work, that nine out of ten girls in the mill cannot write a readable letter at the age of seventeen, and five out of six boys are as bad.

The night classes are not popular amongst them, for there is no need for mental or artistic knowledge. The chief use they put the training to is to read spicy divorce cases, murders, suicides and scandals, football, sporting and comic news. No mental effort being needed at their work, they supply the mind hunger with trashy food, the result being corner boys and street promenading girls when the day's work at the mill is over.

The irregular nature of mill employment is also a great deterrent. Short time has been a common remedy for over-production during the spells of trade depression, and this, with its reduction in earning power, has curtailed the chances of enjoying life. That specialization of trades which forbids a man to be a builder and a spinner, or a weaver and a trained nurse, or an engineer and a slasher, a plasterer and a stripper and grinder, are responsible for much of the trouble when periods of depression come in the textile trades. I think many folks do not care to enter factory life owing to the unions compelling them to pay and agree to the terms of specialized trade employment, which is often solitary confinement to hard, uncongenial labor.

To use an expression we all have heard, "Unto those that have" the wit, brains, training, and application "shall be given," but those that have not these even that which they have shall be taken from them. I am sure that any capital outlay to help forward the staple trade of Lancashire is a good investment to all parties. A great many expenses connected with our educational system are absolute waste, and the sooner the money so spent is put to real, useful instruction and training the better it would be.

We all have a trade pride which makes us feel the sneers leveled at the workers—a national pride in the trade which we are supreme in. Let us be patriots in a true and noble sense, so that when cotton goods are placed before any human being on the globe bearing the imprint of Britain it shall always be, as now, a sign of perfection and the produce of the best brains in the world. No doubt a number of other causes of preference being given to other than mill life or mill work can, and I hope will, be brought forward in the remarks from our members during the discussion. But I will now endeavor to be brief in my outline of suggestions to overcome some of the prejudices against mill life. It will take a long period to establish public favor, and needs the careful cooperation of all officials in the textile industry. Many will say that the prime factor in the whole matter is left out of the synopsis, viz., wages paid. But I feel that this is not the only (and in the smaller families of today is a much less controlling) factor in deciding what shall become of the child. I expect that considerable quiet ridicule or cynical contempt will be shown towards the suggestions put forward. But I trust the critics will take the wide outlook of not only today but the days to come, and thus face the difficulty of expansion of our own industry.

We shall have to adopt more so-called respectable conditions or else make up our minds to accept the inferior and undesirable foreign labor, such as Chinese or some of the lower grades of European peoples, who are exploited to do the menial and manual work in most of the American mills. We as managers have a duty to see that the works are clean in both the physical and moral sense. The moral tone is much better in mills today than it has ever been before, but it is far from being as good as we could wish. The language used to and treatment meted out to the youngsters when they are introduced to their duties are not such that help to lift the job they get into a higher plane.

We should endeavor to give outsiders and

newcomers a clear understanding that gambling is not tolerated in mills; the bookies and their harpies who fatten on the poor deluded "get-rich-quick" little piecer, etc., should not be tolerated, and if I had to deal with them I should show no mercy, for they are germs of deep degradation.

A general recasting of designation of work should be of benefit. Let the workers have more high-sounding titles, for a great influence is carried in a name or title; for in other and higher walks of life we all know of the efforts that are put forth to enable a letter or two to be prefixed or affixed to a person's name, and by this means to distinguish them from the common people. Many occupations formerly were much inferior to what they are today, and few men or women will speak with any pride of their child being a scavenger, a cardroom tenter, a bobbin carrier, a little piecer, a tenter, a reacher-in, and many other names which suggest dirty and under-paid work.

The question of cleaning machinery and oiling which has and is being considered by the workers and employers would remove a great cause of objection to many of the occupations. It would confine the dirty, oily work to a few workers if special workers were engaged for this work only, and it was done outside ordinary mill hours.

Many of the evil effects of cleaning and clearing such as stripping and grinding dust have been overcome; the once almost fatal occupation of grinder has lost many of its terrors. This should be made more generally known, and thus destroy one bogie. The dress of the operatives leaves much to be desired. We must not forget that the outsider judges the work by the appearance of the worker. Personal pride is lacking. This can be greatly encouraged by providing dressing-rooms, where clothes can be hung up, such as hats and jackets and a few looking glasses and wash bowls, etc., providing means of washing and tidying up. I feel sure that the women will rise to the opportunity, and once the women folk begin to tidy up the men will soon follow.

The usual attributes of "the factory lass who wears no fancy clothes" are dirty, oily aprons in some cases with greasy papers pinned on the front, bare, oily, dirty arms, and the hair full of fluff. These are not the best means of attracting the bright, smart, and willing girl to the mills. If each worker was provided a neat, suitable overall, with no strings, a close-fitting calico or print cap to keep hair clean, light sandals or clogs for mill, which could all be quickly changed in a dressing room, by this means the women and girls, also the men and boys, could leave the mill entrance as neat as from any office, shop, school, or home.

The constant monotonous round of duties needs a break. One argument used by workers' representatives against the introduction of the so-called "Yankee system" of carrying materials to and from the workers in mills is that the weaver or winder misses the break which this gives to the work. This feature of mill work is its greatest drawback, for human beings are something better than mere machines. The periods of work should be broken by intervals of rest, recreation, and refreshment. For children or young persons a few minutes for games, say ten minutes after about two hours' work; for grown-ups a smoke or cup of tea, or any other refreshment, with a sing-song or something to take the monotony off. This would keep up the energy and vital force of the workers.

A most interesting fact was given by the factory inspector at the last meeting that the greatest number of accidents happen at the periods when the work hours are almost ended, viz., 10 to 12 and 3 to 5. This shows that when a worker has spent about two hours the care and attention begins to lag, and we may also conclude that the value of work done is reduced during these periods. The eight-hour day is a subject which is now under public discussion, and it would be one great means of bringing the mill work more up to the standard of so-called genteel occupations. The great objection of many folks to mill work is the six o'clock bogey, which haunts the parents, who say they will not let their child get up at those so-called unearthly

hours. If the eight-hour day was adopted a later start could be made.

The food eaten in mills is often not at all suitable for the workers, and we see expensive and wasteful habits adopted, and food eaten in mill workrooms does not nourish the eater as fresh cooked foods served in brighter and pleasanter surroundings. In many other businesses where a number of workers are employed it is usual to provide good, pleasant dining rooms, which are connected to smoke or recreation rooms. Suitable crockery is provided, and sometimes foods are cooked; and if this is done on a large scale the cooperative club system is adopted, and the cost is very much reduced. By these means habits are formed and retained which, when the workers move out amongst other people, they are not at once noticed as being lacking in table or ordinary domestic manners, which is the brand generally carried by mill workers.

The old system of semi-parental control over the younger employes should be revived. In the model villages and country districts of a generation ago the old factory masters took a personal interest in many of the workers' children, and in the limited companies of today the managers have a part to play similar to the part taken by the masters of the past days. The younger employes should be encouraged to attend evening classes and other means of personal attainment of better education. If classes on the mill work were formed and instructors paid from the office of a firm a more personal, direct control over the instruction would be maintained, and instead of weavers studying shorthand and other to them useless subjects, they could be trained to know the loom and its productions.

The technical classes are somewhat a failure from the fact of their being divorced from the works. The whole of our education system seems to be weak in this country. We seem to aim at doing a great number of things badly, instead of a few things well. In the schools, both primary, secondary, and technical, the aim should first be to so train the children that on arriving at an age, say. 12 (not a day older), it shall be put part time to study a trade business or profession, and not one, but two. These should be decided by parents and teachers, and the needful secondary training should then begin, but they ought to come in practical contact with the machinery or apparatus, and to do this the best system is the much-abused part-time system, or half-time, the terrors of which would vanish if the six o'clock rule was dropped, and the grant for attendance to school teachers was stopped, for a considerable amount of the talk comes from teachers who will be gainers financially by the abolition of the half-time system, which I think should be extended both to an earlier and later period.

To enable the child to have a grasp of more than one trade or job, so that in the event of a depression in the trade at which they may be employed they can turn to some other work which may be busy. This would help to ease the bad seasons, and in a large measure balance the slack times for workers. In this way there would be brought into existence a staff of workers who could be either dairymaids or little doffers, weavers or shirt-makers, spinner or farmer, carder or electrician, and a host of similar combinations could be arranged. This, with the help of labor exchanges, and without the hostile trade union element which can often not see far enough to grasp the advantages, will be a great gain to both the workers and the trades generally.

I think the few items mentioned do not by any means exhaust the suggestions for improving the conditions of mill employment to make the work desirable. I have not mentioned the sanitary or health conditions of our mills because I think they compare favorably with any other places where numbers of people are employed or even with many schools and homes which people occupy who often speak disparagingly of mill workers. But I know that the cry will be raised this means expense, and thus less dividends. I think that in any case it means expense if we adopt the "letting-alone" policy, we shall continue to drift, so that a reduced number of workers of the lowest type of intelligence will only be available for our mills; hence high wages to poor workers, which means expense.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

THE DRAFT OF A GILL OR DRAW BOX

BY JOHN BROWN

The object of drafting is not only to reduce the thickness of slivers passing through a gill or other box, but also to distribute evenly the long and short fibers by changing their relative position. In every tuft of wool there are fibers of various lengths. If the drafting is not properly done an uneven sliver will be made.

Wools of medium length will stand a draft equal to the length of the staple. Long wools should have a shorter draft in proportion to the length of staple than short wools, this being due to the increased uniformity in length of the fibers in the short wools and also to the greater fineness. The drafts are less for short than for long wools, but with drafts the same length as the staple, in short wool there is more of the overlap of fibers on which the evenness of the properly drafted sliver depends. A properly drafted sliver when held up to the light should have an even ribbon-like appearance, Fig. 1. A dull, cloudy appearance, Fig. 2, indicates that the draft is too short and that the fibers are not being properly distributed. This gives a bad appearance to a finished top. Thick and thin places, Fig. 3, show that there is too much draft. This can easily be detected by passing the sliver between the finger and thumb.

In passing from one process to another no sliver must be drawn twice running in the same direction or there will be unequal distribution of the short fibers and after a few operations the short fibers would lay in masses side by side. Faulty slivers having the appearance of being caused by bad drafting are sometimes made: 1, By the leather either having a thick joint or thin places; 2, By faulty pins in the fallers, especially if they become hooked at the points and collect the short fibers, making a thin place in the sliver every time they come around. Pins that are out of set have the same effect; 3. When there is too much drag between the back roller and faller. There should be just enough to get the stock well into the faller without any of it riding over the pin points; 4, Back or front rollers set lower than the bottom of the pins in the faller. The top side of the bottom back roller should be

FIG. 1 FIG. 2. FIG. 3.

level with the base of the pin. On the front roller the leather should be at least 3/16 inch higher than the pin base where pinned-through fallers are used and a full quarter of an inch in boxes where brass gills are used, as the flux used in soldering has a tendency to corrode the bottom of the pins, Fig. 4.

Another thing that contributes to irregularity in working and ease in calculating is to

standardize all boxes of one class so that all rollers and gears in one range are of one size. The same arrangement for finishers and drawing boxes facilitates any change which has to be made.

boxes and frames in which drafting is important.

Fig. 6 shows the gearing for driving the front roller; Fig. 7 shows the gearing for the back roller. The specifications for both

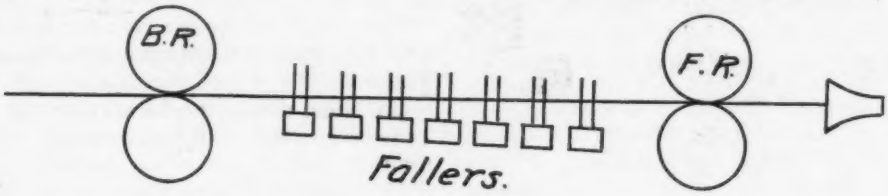


FIG. 4.

When taking the draft of a gill or other box, the rollers and wheels which influence draft should be divided into two classes. The front roller, draft wheel, large wheel on

draft and speed are as follows:

For Speed: Drivers — speed of line shaft, 165 per min.; dia. of drum, 20 inches; low shaft wheel, 46; bevel wheel, 20. Driven —

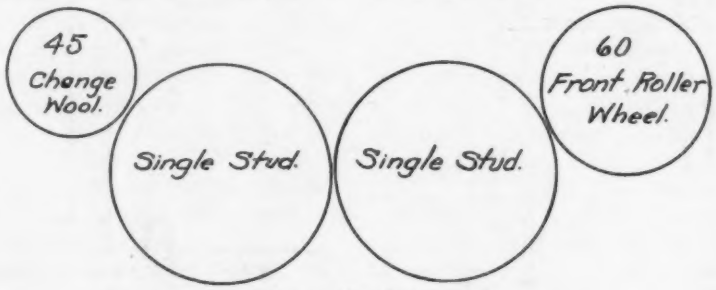


FIG. 6.

double stud, and back roller wheel are called drivers, because if any of them are increased in size there will be more draft. The back roller, front roll gear, change gear on the back roll side and small sweel on the double

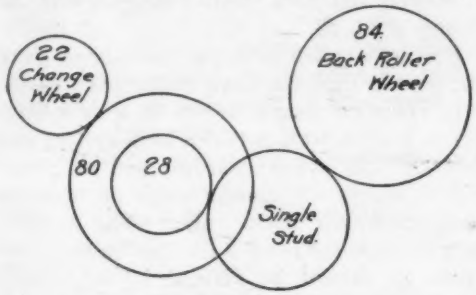


FIG. 7.

stud are placed in the second class, because an increase in their size means a decrease in the draft. Fig. 5 is a plan of a box for gilling fine and medium wools after backwashing, and may be taken as a fair type of all the

diam. of pulley, 14 3/4 in.; back shaft wheel, 60; bevel wheel on screw, 20.

Pitch of double screw, 1 in.; two fallers drop at each revolution. As the screw makes 176 revolutions per minute, 352 fallers drop in the same time.

21 fallers in set, 13 up and 8 down.

Pinned over 11 in., 12 pins per in., No. 15 wire (B. W. G.).

Faller 16 3/4 in. over all, 5/8 in. thick at pinned part.

Pins in back row 1 3/4 in. long; front row, 1 5/8 in. long.

For calculating draft, the sizes of the bottom rollers only are taken into account.

For Draft: Drivers—diam. of front roller, 2 in.; change wheel, 45; double stud wheel, 80; back roller wheel, 84. Driven—diam. of back roller, 2 1/2 in.; front roller wheel, 60; back shaft wheel, 22; double stud wheel, 28.

To determine the draft all the drivers

must be multiplied together; then multiply all the driven. The product of the drivers are divided by the driven, and the result is the draft. Single stud wheels are not taken into account as they do not affect the draft, but only transmit power. Thus the driving (2 x 45 x 80 x 84) divided by the driven (2 1/2 x 60 x 22 x 28) equals the draft (6 5/10). In

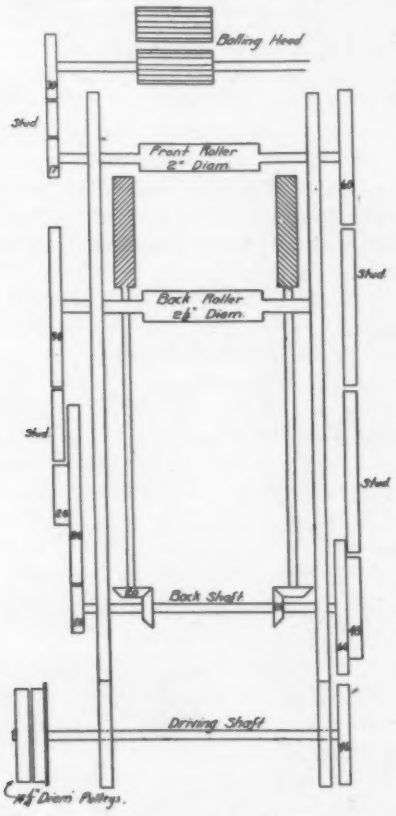


FIG. 5.

other words, the product of the drivers (604,800) divided by the product of the driven (92,400) gives 6 1/2 as the draft.

The calculations for gears and drafts can be shortened by the use of constants. The unvarying factors of a calculation, rollers, and gears other than change gears, may be reduced to a constant number, this being sometimes called the gauge point. The calculation is then made with this constant and the change gear. The constant is found by making the calculation with the change wheel left out of the calculation.

Driven ÷ drivers = constant.
(2 1/2 x 60 x 22 x 28) ÷ (2 x 80 x 84)
= 6.87, constant.

Ex. Find the change gear for a draft of 6.5. 6.5 (draft) x 6.87 (constant)=45, change gear.

Ex. Find the draft with a 45 change gear. 45 (change gear) ÷ 6.87 (constant) = 6 1/2 draft.

The following particulars relate to the

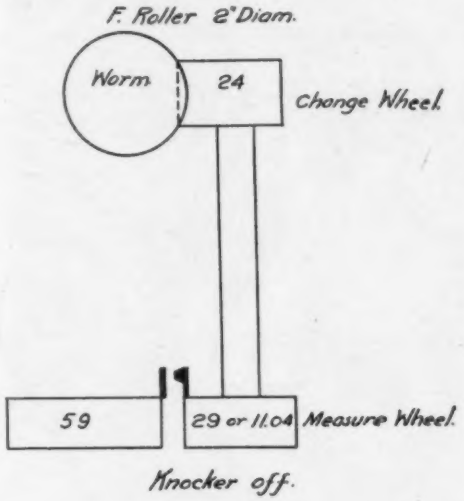


FIG. 8.

draft between the back rollers and the fallers.

Driven — back roller, circ., 7 1/2 in.; bevel wheel, 20; back shaft change gear, 22; double stud, 28.

Drivers — pitch of screw, 1 in.; bevel gear, 20; double stud, 80; back roller gear, 84.

(7 1/2 x 20 x 22 x 28) ÷ (1 x 20 x 80 x 84) = 1 4/10 draft between back rollers and fallers. The worm gear on end of roller, Fig. 8, moves the change wheel on tooth at each revolution of the roller. The 29 gear on a knocker-off is used for convenience, because 29 cannot be divided by any other number. A roller 12 inches in diameter is 37 5/7 inches in circumference. The mean between 37 5/7 and 29 is 33 5/14; which, divided by 3, gives 11.04, the constant.

Drivers: Roller, 2 inches in diameter;

change gear, 24; peg wheel, 59. Driven: Time gear, 29. $(2 \times 24 \times 59) \div 11.04 = 256$ yards at knock-off.

All the above calculations, for the sake of clearness, are based on the gill box shown at Fig. 5; but the principles apply to all classes of machinery where drafting and speeding calculations are required. In long wool preparing boxes, where there is a long draft between back roller and faller, there are two double studs; but this does not make any difference in the method of calculating. The calculations are simplified by standardizing all boxes of a similar class, so that one constant applies to all of them.

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COST OF LIVING IN NEW ZEALAND

The late Mackenzie Government in New Zealand appointed a commission to report on the cost of living, the causes of its increase, and the best remedies. Its report was presented to Parliament a week or so ago, and in its printed form it is a bulky volume of nearly 700 foolscap pages, of which 510 are devoted to evidence. In addition to the main report there are six minority reports.

As to the general causes which have brought about the increased cost of living, the following are given as the chief factors:

1. The increased supply of money, including gold and credit, and the increased velocity of circulation, all of which appear to have outstripped the increase in the volume of goods and services exchanged against them.

2. The increased cost of production of farm products and the increased demand, both locally and abroad, for foodstuffs produced in the country.

3. Rural depopulation abroad and slackened rate of production of food stuffs in countries, such as the United States, which have hitherto exported a large proportion of the amount produced therein.

4. Local combinations, monopolies, and trusts, commercial and industrial, which both raise prices directly to the consumer, and tend to discourage initiative and self-reliance.

5. The diminishing of the natural fertility of the soil, and of the natural resources abroad.

6. The relatively higher increase in the cost of distribution owing to increased transportation charges, the excessive number of those engaged in the work of distribution, the duplication of distributing agencies.

7. The national waste involved in extravagant living as evidenced by excessive devotion to luxury, sport, and unwise recreation; lack of economy in local and governmental service; wasteful domestic methods employed by the great mass of the people; rapid changes of fashion in clothing and boots; the devotion of an increasing proportion of wealth to non-productive uses.

8. Increased taxation, both local and national.

9. The operation of protective tariffs and trusts abroad in raising the first cost of imported articles.

10. The New Zealand protective tariff, especially as regards taxation on the necessaries of life.

11. The failure to attain that national efficiency which can be secured only by the operation of a well considered and properly coordinated scheme of education—general, industrial, commercial, agricultural and domestic.

12. The higher standard of life. Recently there are signs that it is becoming increasingly difficult to maintain this new standard.

Quite a number of remedies are suggested in the report. It is recommended that a Statistical Department be created, and that it should be under the control of the Government Statistician assisted by an advisory board. Under the heading of "education" it is recommended that there should be included in the primary school syllabus a definite course of simple descriptive economics, and the development of a more systematic course in the secondary schools. The extension of education in domestic economy. The formulation of a complete scheme of agricultural education, and the endowment of research scholarships in agriculture. That steps should be taken to secure expert advice for parents in choosing avocations for

children. Additional provisions are suggested for the Commercial Trusts Act, and another recommendation is that a permanent Board of Industrial and Social Investigation should be set up.

With respect to the Customs tariff and protection, the suggestions made are the abolition of duty on all foodstuff and on the necessaries of life used by the primary producers, failing this the reduction of certain duties and the abolition of others. Other recommendations are a systematic immigration policy and the continuation of the Sedgwick, also an assisted scheme for adult labor. There are a variety of other recommendations of negative interest. There are six minority reports.—Dalgety's Review.

A WEAVING MILL FOR NORTHROP LOOMS

From Uhlands Technische Rundschau

[Translated from the German by the Editor of the Textile World Record.]

Since the Northrop loom has been so generally adopted in nearly all of the cotton manufacturing countries, the question has become more pressing as to how a weaving mill equipped with this loom should be built in order to obtain the best results. While a weaver can run usually only four old style looms, it is possible for one weaver to operate sixteen or more Northrop looms, because hand work has been largely superseded by the machine. With good yarn in the warp the warp stop motion operates so seldom that the weaver is rarely called upon to repair broken ends and start the loom in motion. When one weaver can run sixteen looms without difficulty the weave room naturally becomes divided into groups of sixteen looms, each group having one weaver and one or more yarn carriers. The sixteen looms should be so arranged that each one is easily accessible. One arrangement is to set eight looms to the right and eight to the left of the weaver, making a very long passageway. The result is that when a defect occurs in the work the chances are it will escape the attention of the weaver who is likely to be some distance away. This causes imperfect goods and a decreased production. It becomes necessary, therefore, to arrange the looms so as to reduce as much as possible the area covered by the group of sixteen.

Figs. 1 and 2 show a weaving mill arranged for 320 Northrop looms, that is, twenty groups of sixteen each. The arrangement of the looms is shown in the ground plan, Fig. 3. Each group is arranged in squares of four looms each way. At the lower left hand corner of the plan is shown a group with the loom lays marked on the plan, illustrating the ease with which the weaver can watch the work in the two passageways. The alleyway with eight looms on each side enables the weaver to keep within a short distance of each loom. Moreover in teaching a weaver to run the Northrop loom it is necessary to start him with four looms, gradually increasing the number until he has sixteen under his charge. The group of sixteen can be divided into smaller groups of four or eight each for this purpose. Group XI shows sixteen looms operated by independent motors, enabling the power to be partially or entirely shut off as desired.

Tracks are laid in the weave room enabling the yarn and other materials to be easily transported between the weave room, the shipping room, D, and the warping and sizing rooms, B and C. The ground plan, Fig. 3, shows the convenient arrangement of the different departments, reducing the time and labor of handling to a minimum. The main entrance is in the front annex of the mill through a passageway leading to the weave room. Adjoining this passageway are the offices, H, the wardrobe, G, G^1, and the writing room, F, which is separated from the office and leads to the yarn storage room, D. The storeroom, D, is connected with the weave room and the warping room to facilitate the delivery of warp and filling yarn to the respective departments. The warping room, B, has three 200-spindle spooling machines, and five warpers, z. The warps are transported to the sizing room, C, which contains two sizing machines, s^1 and s^5. The apparatus for preparing the sizing materials is shown at s^2 and s^3. The beams are stored in the space, s^1. In the room, B, there are six drawing-in frames, a. Space, z^1, is left for twisting, reeding and other necessary work. The material passes by the shortest cut through the rooms, D, B, C and A.

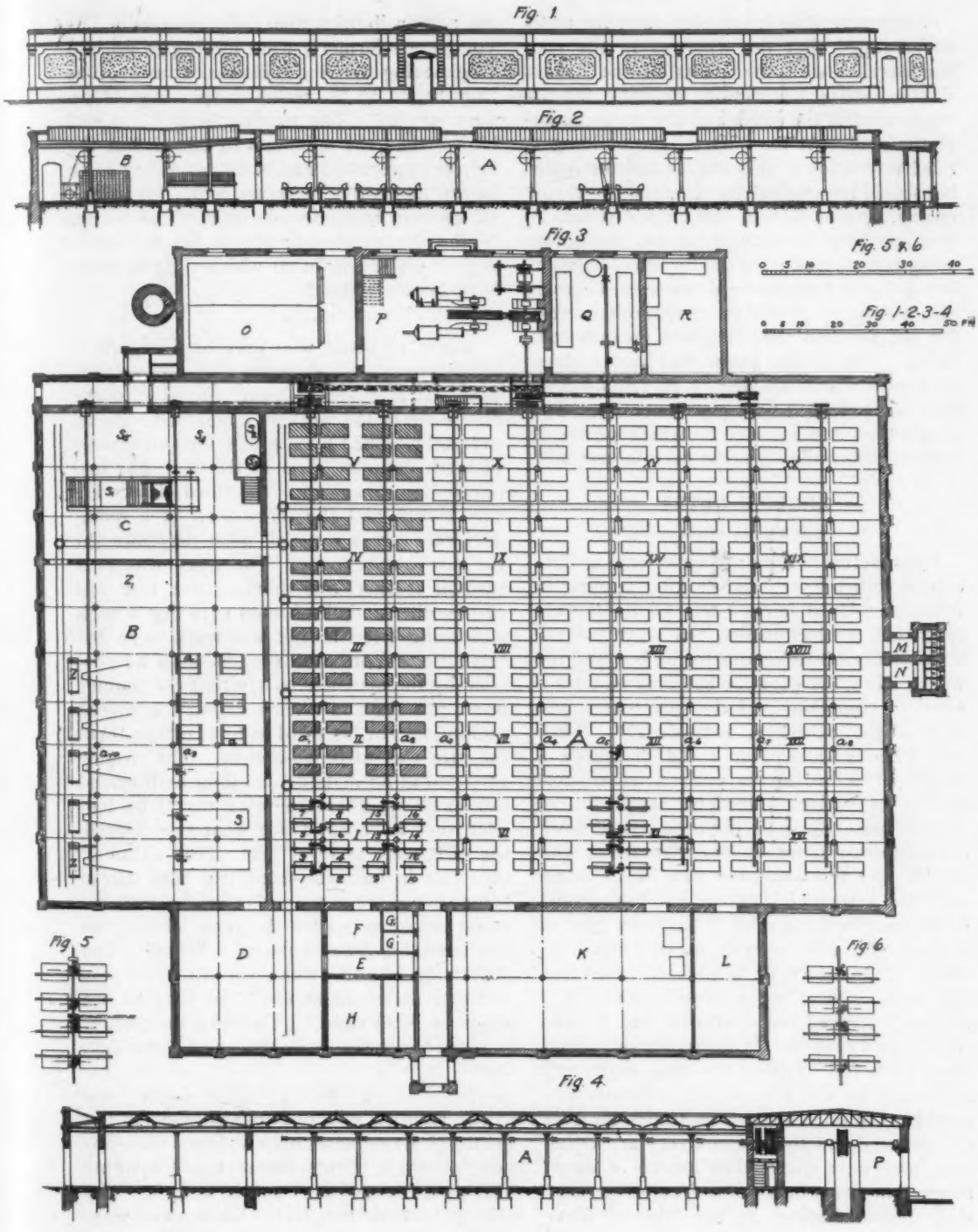
Fig. 1
Fig. 2
B
A
Fig. 3
O
P
Q
R
Fig. 5 & 6
0 5 10 20 30 40
Fig. 1-2-3-4
0 5 10 20 30 40 50 FM
S
C
Z
B
M
N
A
D
F
G
E
H
K
L
Fig. 5
Fig. 6
Fig. 4
A
P

The weave shed is one story and the posts so arranged that the windows in the roof run parallel with the shafts of the looms, Figs. 2 and 4 are sections showing the arrangement of the posts and the construction of the roof. At the back of the building is a beltway; back of this are located the boiler house, O, the engine room, p, and the repair rooms, Q and R. In the engine room, P, is a 200 h. p. compound engine, the power being transmitted from the fly wheel by eight hemp ropes 2 inches in diameter. There is also a dynamo providing continuous current for six arc and four hundred incandescent lights. The boiler house has two boilers, each with a heating surface of 1,620 square feet, and provided with an economizer. The plan shows the manner in which power is transmitted to the different parts of the mill.

ENGLISH NOTES

From Our Regular Correspondent

Manufacturers here are experiencing difficulties with the help of the kind familiar in America. Until fairly lately an overlooker could cuff a blockheaded boy over the ear with results advantageous to the boy and the work. Now the superior has only to utter a word of complaint and the boy leaves and finds a job elsewhere immediately. Time was when a boss dyer could discharge a duffer of a workman with a reasonable chance of replacing him by some one of more sense. But now the men out of work are uniformly more useless than those who are in and the employer has to sit down with his grievance. "How much ammonia do you put in the machine?" asked a dyer of a man who had worked in the place for years. "One-third of a bucket," answered the man. "And what is one-third of a bucket?" pressed the dyer who had noticed the quantity used. "Oh—a bucket about three parts full," replied the man, answering according to the best of his mathematical ability. Labor is wanted in trades all over the country and those employers are doing best who have given their people a direct interest in the work. Our Yorkshire worsted spinner having, as the fruit of three years' exertion, put every man, woman and child in the mill on a piecework footing finds his responsibilities materially relieved. The youngsters formerly were leaving to go into neighboring weaving mills almost as soon as they began to be useful in spinning. Now they stay on. The weaving wages are still higher than the spinner can afford, but the help are interested and satisfied. They work better and while earning more for themselves earn more for the mill. The framer of the list refuses firmly to let any competitor see the scale on which the payments have been arranged.

* * *

A hint to those who may be fixing rates for piecework comes from a man of experience. It is never to leave any rate to the discussion of the workers concerned. By an oversight he had fixed prices for two classes of work done by girls in the mill, but had omitted to arrange for the third class. He was absent and the office staff in a quandary sent to ask the girls what they thought the rate ought to be. The place was in a turmoil at once, one thinking one rate and one another and all of them sure that a trick was being tried to get the work done for too little. Word was sent as soon as possible by the manager to say that the inquiry was a mistake and when a deputation waited on him, he got his word in first, telling them the rate was to be so-and-so. The trouble vanished in an instant. So long as they did not know whether the price would be half what they hoped or twice what they feared, the girls were at fever heat. And although the price in fact was fixed at a rate fair in comparison, the manager is pretty sure the result would have been the same whether he had named a lower sum or a higher. The deputation had only one comment which was twice or thrice repeated: "So long as we know, it is all right." To leave the parties in suspense is the fatal error and a needless one.

* * *

The auditing of mill books is much in the hands of large accountancy firms who impose on their clients the standard systems which experience has shown to be best. The principal accountants to the woolen and worsted trade insist that account shall be reckoned on the basis of the prevailing charge

for room and power made to tenants of mill premises in the district. Thus in Huddersfield room and power for a set of cards and pair of mules costs $300 to $350 per annum and for looms costs $30 to $35 per annum. It is common to have looms elsewhere than in one's own shed and to pay for their housing and running half a crown (60 cents) a week. The manager is expected to make a substantial profit in excess of the sum that would be paid by an outsider occupying the place. To ask what a manufacturer expects to make per loom is to put a question to which there are many answers. The woolen trade prefers to calculate profits not per loom, but per set. The worsted trade is carried on under many conditions, but perhaps the rarest condition of all is to possess a complete balance of machinery. The manufacturer who both spins and weaves, spins either a good deal more or materially less than he needs for his looms. Equipments, values, outputs and credit terms vary too widely to enable results to be reduced to a common denominator. The concerns which publish their profits are few and are not needfully the best or most profitable undertakings. Manufacturers and their accountants are the ones who know best what is made. When a company is formed to acquire a woolen or worsted mill it is usual to divide the stock into approximately equal quantities of cumulative preferred, bearing 5 to 6 per cent., and common. If the dividend on the common is a steady 10 per cent. the return is a very good one and 12 1/2 or 15 per cent. are excellent.

* * *

Ring spinning is making evident headway in the silk trade in this country for yarns both of long and short staple. In one quarter the ring frame, backed by French drawing, has replaced the woolen mule. The manufacturer wanted to enlarge the spinning output without extending the building and the object has been achieved in this manner. On the one hand the yarn is said to be absolutely the same as that which used to be made on the mule and on the other hand it is objected that the yarn is less elastic. There is no doubt, however, that the new yarn serves the old purpose well enough and at an economy of room.

The practice of selling domestic as imported goods is not at all unknown in this country although it may be less prevalent than at one time. During the years in which French dress goods were the vogue in England, Bradford makes were plentifully sold under French names by jobbers and retailers. Exhibitions have had to be held and all sorts of protestations to be made in order to convince the rather hasty and supercilious gentlemen who buy for London houses that English dress goods compare with foreign in shade and choice of shades. Nobody is proof against the fancy for importation. It is an assured fact that Paris jobbers have bought Roubaix cloths in Bradford under the belief that they were getting Bradford goods and have paid heavy duty, profit and freight on articles which could as easily have been got at first cost at home. There is a classic case, too, of a Berlin jobber buying South German goods in Manchester with double freight, duty and profit on their head. When the men who plume themselves on their astuteness and knowledge of fabrics fall prey it is no wonder that the shop-window-gazer fails to recognize domestic goods.

* * *

There seems to be a fear that American manufacturers of overcoatings have withdrawn the styles into which silk noils enter and that the recent pronouncement of the Treasury Department will thus be of less effect. The sample submitted by the Silk Club for the opinion of the Department was especially prepared and selected with a view to ensuring the presence of a larger proportion of long fiber than is to be found in any long white silk noils of ordinary production. A sample carefully sealed by the U. S. Government has been returned together with the intimation that noils identical with it are entitled to entry free of duty. There is reason to believe that shipments have been made subject to receipt of the Appraiser's approval, failing which the delivery to be re-exported out of bond.

* * *

An effort to substitute mohair for camel hair in making tire jackets for automobile wheels has apparently ended badly. Whether the camel hair is the genuine article or the

compound of hairs and wools dyed to a fawn color and given the name of camel does not appear. What is certain is that the mohair yarn was used in rather slack twist and in knotless condition. It was combed and spun without oil and given four separate scourings. The deliveries were rejected on the ground that the yarn still contained grease enough to cause faults to develop after the jackets had been rubbered and used for some time. Rightly or wrongly, the trouble is attributed to the grease in the internal structure of the mohair fiber and the greater elasticity of mohair has thus been set at naught after a spinner had bought machines for the business and a motor-trader had got a large number of the jackets woven.

* * *

Representatives from the United States are to take part in a conference to be held in Manchester in January to devise an effective international law against the pirating of textile designs. Indignation is strong in Nottingham against the copying of English lace designs in Philadelphia, although Vienna and Liepzig makers are said to be worse offenders. American, British, Swiss, German and Russian delegates are to assemble and it will possibly be found that there are manufacturers in all countries who lose by the freebooting. Within the United Kingdom a design can be registered for five years for $7.50 and the term can be renewed for two similar periods. Registration can be effected by any person, the proprietor of a design not previously published in this country. The title to exclusive use is, however, open to the objection of "non-working" familiar to those who know the 1907 Patents Act. Anyone can apply to the Comptroller to cancel registration on the ground that the design is used mainly or solely for manufacture outside the United Kingdom and this objection is good ground of defence against actions for infringement.

* * *

The draft notes of an agreement made at conferences on the safeguarding of workpeople against accident in woolen and worsted mills run to considerable length. Briefly it has been agreed that side-belts, toothed wheels (including bevel gears), chain drives and shaft ends shall be efficiently protected. All box-looms and all looms running 100 pick a minute, or having 90-inch reed space are to carry shuttle guards. Once a month the fencing, ventilation, fire apparatus and sanitary conveniences are to be inspected by an official of the mill. The weights to be lifted by boys and girls are settled by a scale:

	Girls	Boys
Under 13 years of age .....lbs.	16	24
13-14 .....lbs.	20	30
14-15 .....lbs.	35	40
15-16 .....lbs.	35	50

Floors and stairs are to be kept as free from dirt and grease as practicable and all cleaning of machines in motion is to be avoided. Formulas for lighting and temperature remain to be found.

* * *

A reader, mindful of the times when textiles imported into England were subject to duty, asks what measures were taken to put down frauds upon the revenue. Evidently ordinary measures were failing badly of their object in 1837 when the following newspaper announcement was made:

> Notice has been issued by W. Stuckey, inspector of silks of St. Botolph Lane, near the Customhouse, intimating that representations made to him inform him that there are a variety of persons in the metropolis who annually defraud the revenue of nearly £50,000 ($250,000) by the smuggling of foreign manufactured silks. A reward of 35 per cent. is therefore offered to any persons who shall be instrumental in the detection of the conveyance of such goods and likewise seizure; with a further reward on the conviction of the parties according to the penalties inflicted.

Undervaluation does not arise in British practice at the present day for the reason that the duties are entirely specific. Those who are caught smuggling cigars, saccharin or spirits get heavy fines and lengthy imprisonments. Silks and laces were the textile goods last to be freed from duty and there is every reason to suppose that illicit transactions existed in them as long as the tax was on the books.

BEADED FABRICS

BY ROBERT DANTZER

[Translated from the French by the Editor of the Textile World Record.]

These fabrics have glass or metal beads scattered over the surface of the cloth, which is woven with any desired weave. The beads are strung on special warp threads which are woven into the fabric with the other threads in the ordinary way. The beaded threads are drawn in through hed-

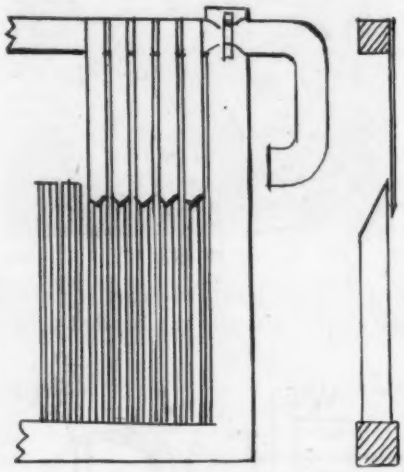

FIG. 1.

dles having extra large eyes, the shafts carrying these heddles being placed in front of the other shafts. These goods are made on hand looms. The beads are first strung on heavy cotton yarn, either by hand or machine, the Myers and Ketley machines being generally used. The mechanism is very complicated and it is not necessary to give a description of it here.

The reed, which is manufactured by M. Groulard, at Bohain, consists of two parts, the lower part is solid, while the upper portion is jointed, as shown at Fig. 1. The wires in the lower part are very coarse in order that they may remain rigid, as they are fastened only at the bottom. At the upper ends the wire are soldered in groups of four or five to correspond with the number of beaded threads in the warp. The open dent contains the beaded thread in addition to the regular ground thread. The rack at the top of the reed consists of small steel plates soldered flat, and pressed against the wires below in such a way as to allow the

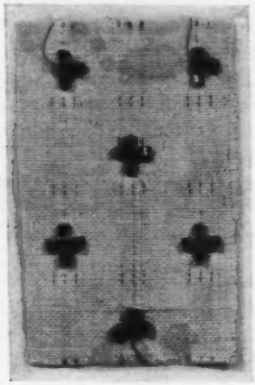

FIG. 2.

beaded thread to pass into the open spaces between the plates which correspond to the

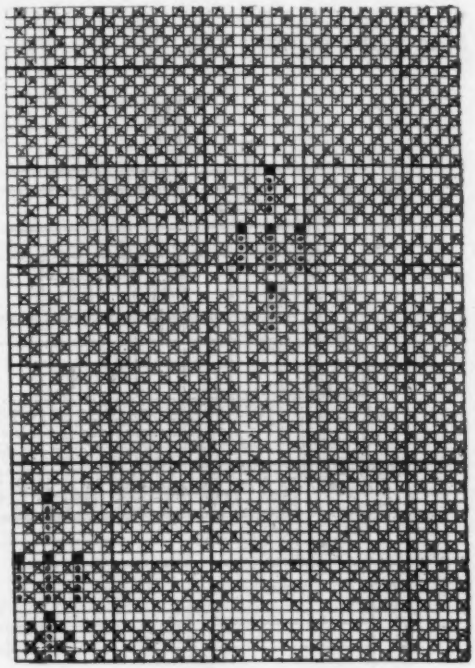

FIG. 3.

open dents in the lower part of the reed. This space, however, is not wide enough to allow the bead to pass through. The plates

are soldered to a rod running along the top of the reed and ending at the right in the form of a hilt.

Fig. 2 shows a sample of beaded cloth woven with a plain weave for the ground, the draft being shown at Fig. 3. An examination of Fig. 3 shows that four harness are

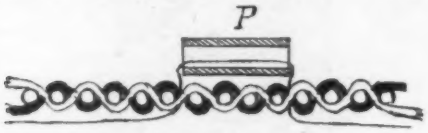

FIG. 4.

necessary for the ground warp and four for the beaded warp. In order that the bead may rest flat on the cloth, it is necessary to have the beaded thread float over several picks. The section, Fig. 4, running lengthways of the cloth shows the manner in which the beaded thread is raised when a bead is applied to the cloth. The length of the float depends upon the size of the bead. To place the beads on the cloth the weaver raises the bead shafts in order that the yarn may be brought above the lower part of the reed. All of the beads slide along the yarn until they come against the plates at the upper part of the reed. When the threads are lowered the beads pass through the dents and then the weaver raises the movable reed

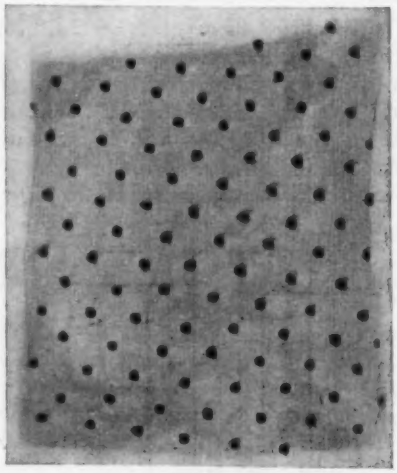

FIG. 5.

slightly and the beads are carried into place on the cloth. Usually the beaded yarn is of the same color as the yarn in the ground and instead of letting the beaded threads float loosely on the back they are stitched at reg-

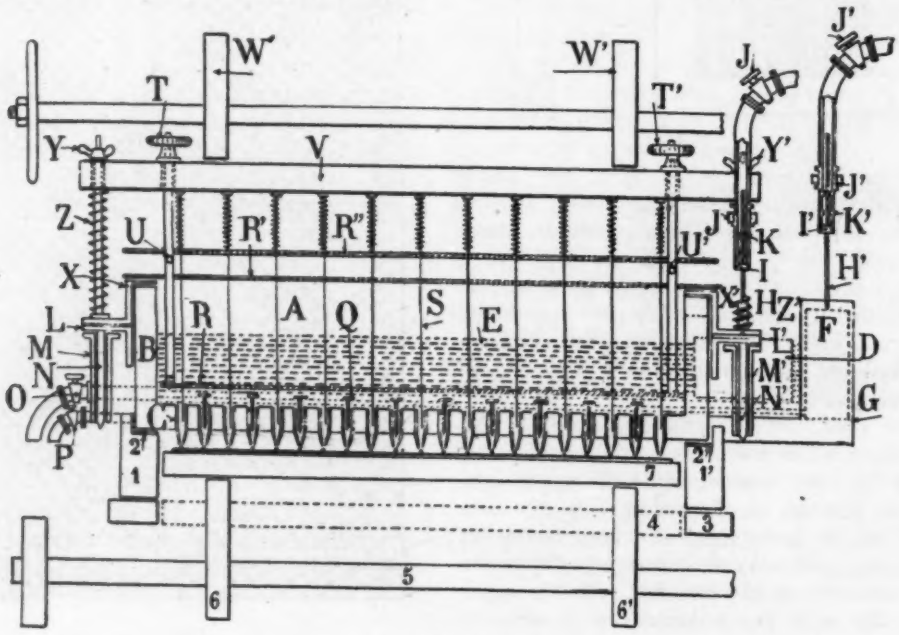

FIG. 6.

ular intervals into the fabric. The beads can be applied to the fabric by hand after the cloth is woven, but this work calls for no special explanation.

Imitations of beaded fabrics are made by applying to the cloth drops of gelatine colored any shade desired. Glue, rubber, boiled oil or varnish are sometimes used in place of gelatine. Colors prepared for printing fabrics are also used, the shades being brightened by the use of acid. Gelatine should be used, preferably in a fairly liquid state. It is made insoluble either before or after it is applied by any of the methods ordinarily used, such as the evaporation of formic acid, or better by immersing the cloth in a weak solution of bichromate and rinsing in water immediately afterwards. If the fabric has few projecting fibers on the surface and the solutions as a result do not adhere well to the surface, it is necessary to pass the cloth rapidly over a hot cylinder while the drops of gelatine are still in a liquid state. In this way the gelatine becomes firmly attached to the fabric. While the drops or beads are still in a liquid state they are sometimes coated with gold, silver, silk or wool powder. The appearance of the drops can be still further modified by pressing with embossed plates, which should be coated with talc to prevent adherence of the solution.

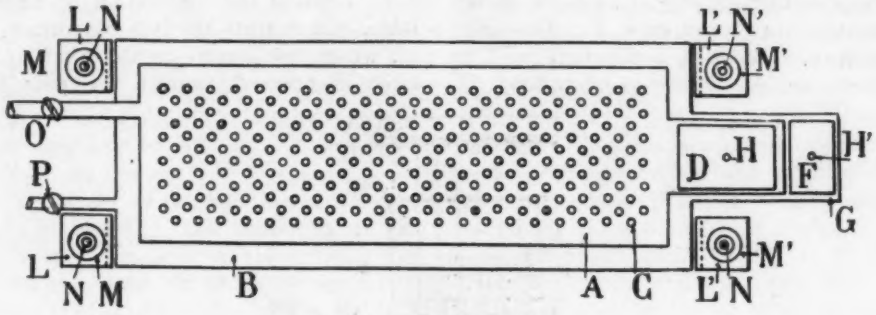

FIG. 7.

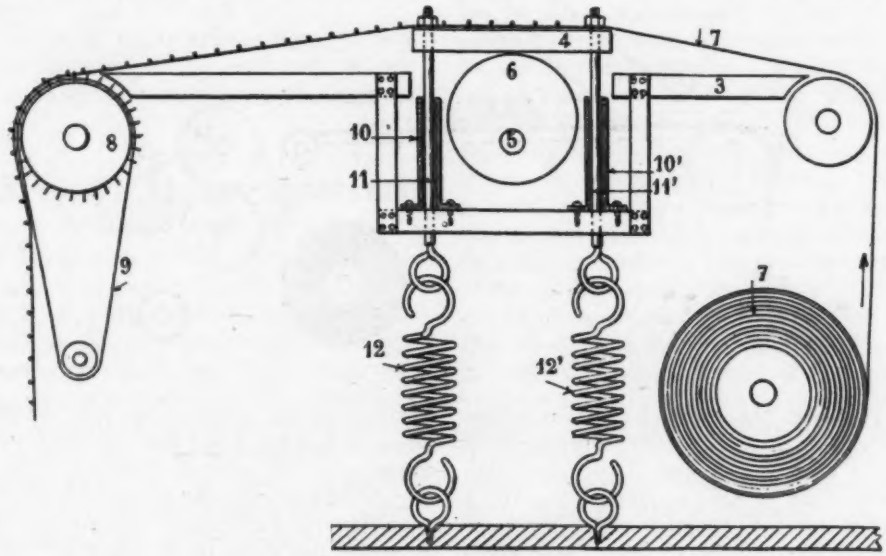

FIG. 8.

Fig. 5 shows a sample in which the gelatine beads are coated with gold powder.

Figs. 6, 7 and 8 are illustrations of the apparatus used for this style of finish. The gelatine solution is supplied by the pipe, J, to the tank, A. This solution is heated by hot water in the receptacle, B, the water being supplied by the pipe, J^1, and the steam introduced through the pipe, P. The gelatine solution is kept at a constant level in the receptacle, A, by means of a float, D, which regulates the supply by means of the stem, H. The float, F, serves to regulate the supply of water by means of the stem, H^1. At the bottom of the receptacle, A, are a number of tubes, C, through which the solution passes to form the drops. These apertures are opened or closed by means of the plugs, Q. The plate, V, is moved by the cams, W, W^1, which are mounted on a shaft as shown. When these cams press against the plate, V, the latter is pressed down, causing the needles, S, to close the tubes, C. As the cam turns, the springs raise the plate, V. The needles rise, opening the tubes and allowing the liquor to pass through. The cloth lies on a table, 4, shown in Figs. 6 and 7, and which moves alternately up and down. Fig. 8 shows the method of operating the table, which rests on two eccentrics, 6 and 6^1, which are keyed to the shaft, 5. The table is pressed against the pins by the springs, 12 and 12^1. In this way the cloth is pressed against the tubes, C, and impregnated with the gelatine solution. The cloth is carried along by the roll, which is covered with fine card clothing. An endless apron, 9, strips the cloth from this roll. At each turn of the shaft, 5, the cloth is moved the distance called for by the design.

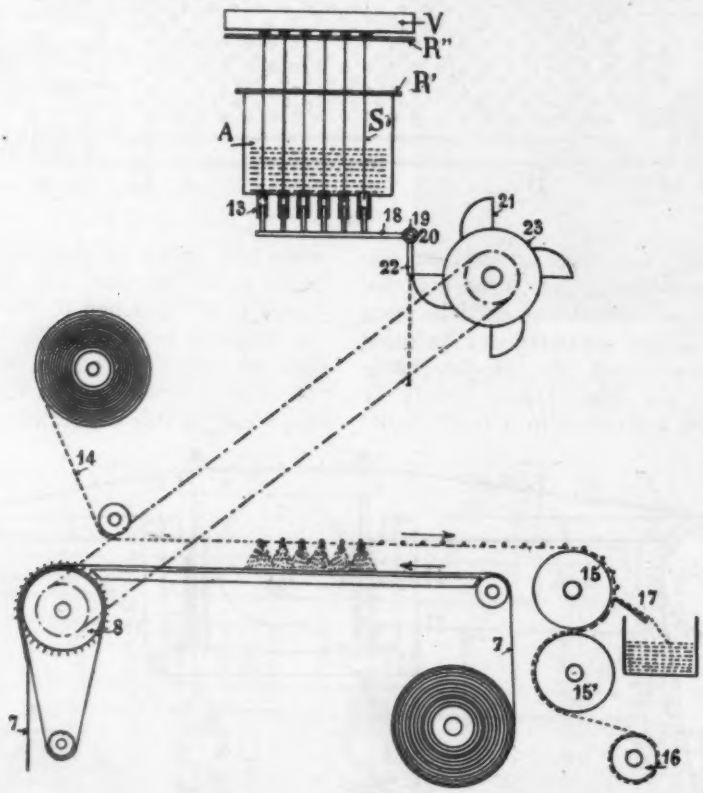

FIG. 9.

The speed of the machine depends upon the thickness of the gelatine solution. In case of accident necessitating the stopping of the machine, the supply of the solution

through the tubles can be stopped by giving the eccentric, W, W^1, a half turn. The drops of gelatine forming the beads occasionally vary in size and position. To remedy this difficulty the apparatus shown at Fig. 9 is used. The receptacle, A, contains the solution and the drops are pulverized by contact with a metal cloth, 14, which is moved by the rollers, 15-15^1, being wound around the roller, 16. The metallic cloth moves in the direction opposite to that of the fabric, 7, which is to be coated. A scraper, 17, removes the excess of the solution which has not been pulverized. The tubes, 13, at the bottom of the receptacle, A, are subjected to the action of a plate, 18, which swings on an axis, 20. When at rest the plate, 18, falls to the position indicated by the dotted line, the cam, 21, pressing against the arm, 22, raising the plates against the tubes, 18, and regulating the distribution of the drops of the solution. The plate, 18, is covered with cloth which is changed from time to time as required. The tubes, 13, are closed by the aid of needles, S, which are operated by the plates, V and R^1 and R^2.

The imitation beads are far more popular than the genuine article and can be produced in a greater number of designs and colors.

HAVRE COTTON TESTING LABORATORY

From Consul John B. Osborne, Havre, France

The Federation of French Cotton Spinners, whose headquarters are at 9 Rue St. Fiacre, Paris, has established at Havre a laboratory for determining the percentage of moisture or any abnormal degree of dryness that may exist in cotton. The establishment of this laboratory, which began operations on Sept. 20, 1912, was in pursuance of the recommendation of the last International Cotton Congress held at Barcelona, Spain.

It is claimed that cotton in its normal condition should contain only 8 1/2 per cent. of humidity and that any excess may be considered as abnormal and the staple classed as moist merchandise. On the other hand, cotton containing less than 8 1/2 per cent. of humidity may be considered as defective on that account and too dry to be used to advantage.

The method of operation is as follows: Samples are taken by employes of the laboratory in the presence of buyer and seller (or their representatives), each of whom selects 5 bales out of every 100. Three samples are taken from each of the 10 bales indicated, thus making 30 samples.

The samples are placed in metallic boxes, which are hermetically closed, removed to the laboratory, weighed with great precision, their weight noted on a card form, and then placed, for three hours, in a ventilated oven kept at a temperature of 95° C. (203° F.), where the cotton is almost completely dried. From this they are taken to another ventilated oven kept at a temperature of 115° C. (239° F.), where, without being removed, they are weighed every 10 minutes, note being taken of the change. When weight ceases to be lost, the cotton is considered to be absolutely dry, having given off all its moisture.

The difference between the weight of cotton in this condition and its weight when taken from the bale—allowance being made for the normal degree of 8 1/2 per cent. of moisture—represents the excess of moisture contained in it on its arrival. That is to say, assuming that 100 pounds of cotton should weigh in its normal condition 108 1/2 pounds, and that this cotton, when dried by the process referred to, weighs exactly 100 pounds, its condition may be considered as perfect. Any variation would represent either an excess or dryness or moisture. In the event of excessive moisture being discovered, the spinner to whom the cotton is sold would make a claim against either the shipper in the United States or his agent at Havre for the loss sustained, claiming the actual value of the staple after allowance has been made for weight represented by excessive moisture.

The fee for testing cotton is 35 francs ($6.755) per 100 bales, when the samples are taken from 10 bales per 100. For small lots, however, the charge is 22.50 francs ($4.342) per 50 bales, the samples being taken from 5 bales instead of 10.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

Fig. 899 .....16 ends, 16 picks
Fig. 900 .....16 ends, 16 picks
Fig. 907 .....16 ends, 16 picks
Fig. 908 .....16 ends, 12 picks
Fig. 909 .....16 ends, 16 picks
Fig. 910 .....16 ends, 18 picks
Fig. 911 .....18 ends, 18 picks
Fig. 912 .....18 ends, 18 picks
Fig. 913 .....18 ends, 18 picks

FIG. 899. FIG. 900. FIG. 901. FIG. 902.

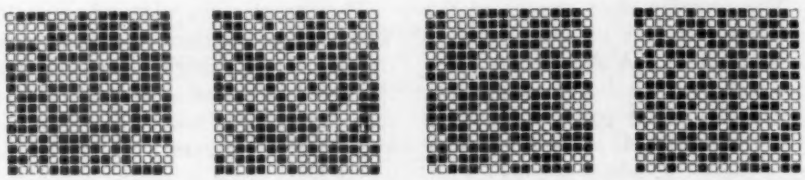

FIG. 903. FIG. 904. FIG. 905. FIG. 906.

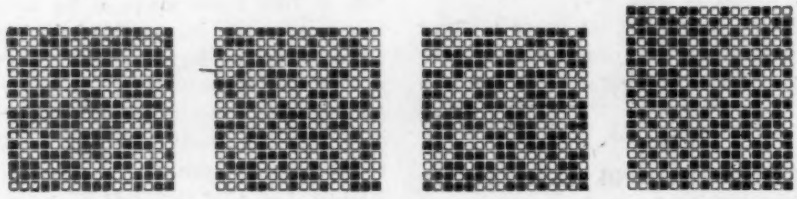

FIG. 907. FIG. 908. FIG. 909. FIG. 910.

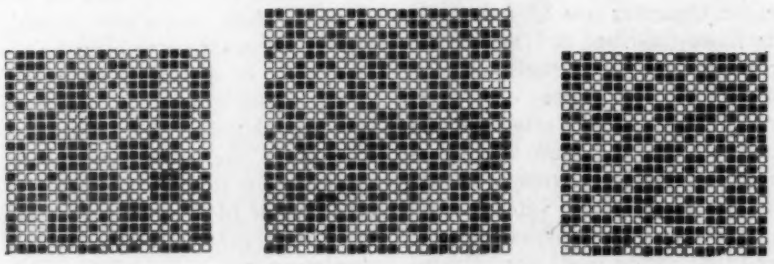

FIG. 917. FIG. 918. FIG. 919.

Fig. 901 .....16 ends, 16 picks
Fig. 902 .....16 ends, 16 picks
Fig. 903 .....16 ends, 16 picks
Fig. 904 .....16 ends, 16 picks
Fig. 905 .....16 ends, 16 picks
Fig. 906 ..... 8 ends, 16 picks
Fig. 914 .....18 ends, 18 picks
Fig. 915 .....18 ends, 18 picks
Fig. 916 .....18 ends, 18 picks
Fig. 917 .....20 ends, 20 picks
Fig. 918 .....24 ends, 24 picks
Fig. 919 .....20 ends, 20 picks

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CREPE WEAVES DERIVED FROM SATIN

The satin weave is first drafted and then one or more points (risers) are added, either above, below or at one side of the satin points, the number depending on the distance between the satin risers. Other weaves may be drafted in the space between the satin points, the size of the weave pattern depending on the number of threads in the satin weave. Several examples are

FIG. 911.

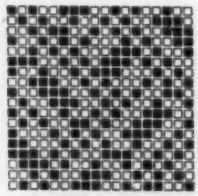


FIG. 912.

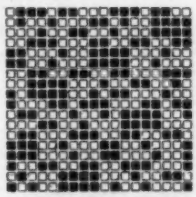
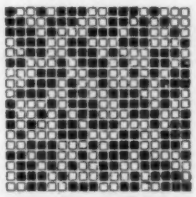


FIG. 913.



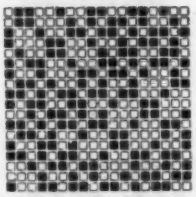


FIG. 914.

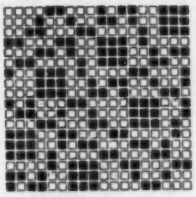


FIG. 915.

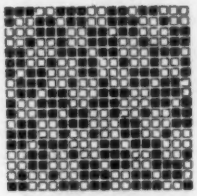


FIG. 916.

FIG. 920.

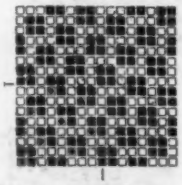


FIG. 921.

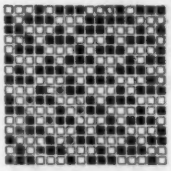


FIG. 922.

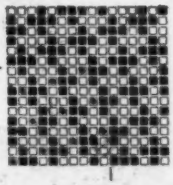
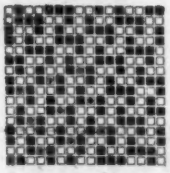


FIG. 923.



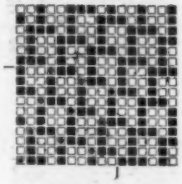


FIG. 924.

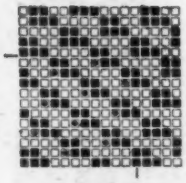


FIG. 925.

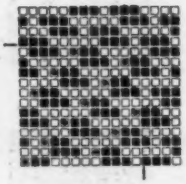


FIG. 926.

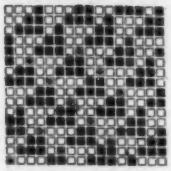


FIG. 927.

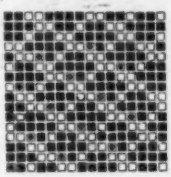


FIG. 928.

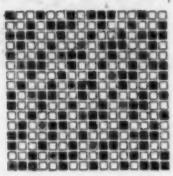


FIG. 929.

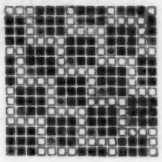


FIG. 930.

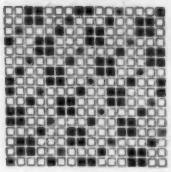


FIG. 931.

shown at Figs. 920 to 931. The risers of the original satin weave are indicated by different type in part of each draft.

CREPE BY ARRANGING GROUPS OF FLOATS IN SATIN ORDER

A large number of crepe effects can be obtained by forming a group of risers and then arranging like groups in satin order with any desired number of threads in the pattern. The resulting weave may have warp and filling threads floating too far; these must be stitched down so as to connect the groups in regular order. Examples are shown at Figs. 932 to 996. Beside each of the first nine drafts, Figs. 932 to 940, is placed the group of floats used for the base of the crepe weave.

Fig. 920 ..... 8 x 8 satin
Fig. 921 ..... 8 x 8 satin
Fig. 922 ..... 10 x 8 satin
Fig. 923 ..... 10 x 8 satin
Fig. 924 ..... 10 x 10 satin

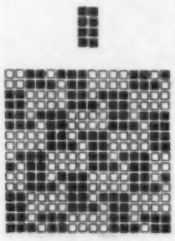


FIG. 932.

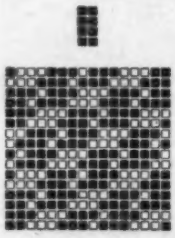


FIG. 933

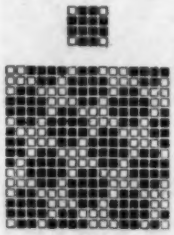


FIG. 934

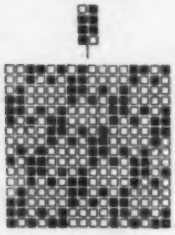


FIG. 935.

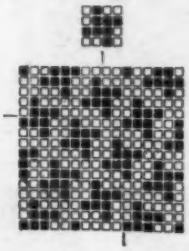


FIG. 936.

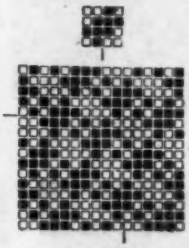


FIG. 937.

FIG. 941.

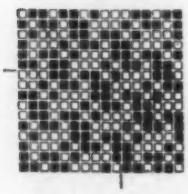


FIG. 942

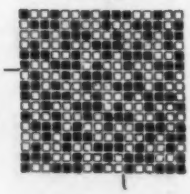


FIG. 943.

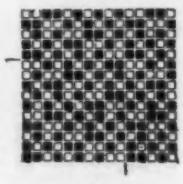
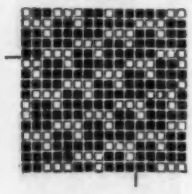


FIG. 944.



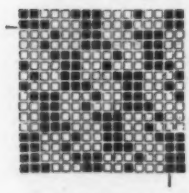


FIG. 945.

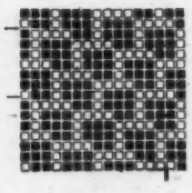


FIG. 946.

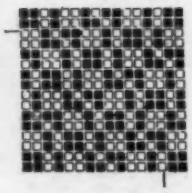


FIG 947.

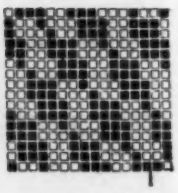


FIG 948.

Fig. 925 ..... 11 x 11 satin
Fig. 926 ..... 12 x 12 satin
Fig. 927 ..... 12 x 12 satin
Fig. 928 ..... 13 x 13 satin
Fig. 929 ..... 13 x 13 satin
Fig. 930 ..... 15 x 15 satin
Fig. 931 ..... 16 x 16 satin

Fig. 932 .. 10 x 10 5-leaf satin, 1, 4, 2, 5, 3
Fig. 933 .. 10 x 10 5-leaf satin, 1, 3, 5, 2, 4
Fig. 934 .. 10 x 10 5-leaf satin, 1, 4, 2, 5, 3
Fig. 941 ..... 10 x 10 5-leaf satin
Fig. 942 ..... 10 x 10 5-leaf satin
Fig. 943 ..... 10 x 10 5-leaf satin

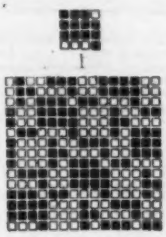


FIG. 938.

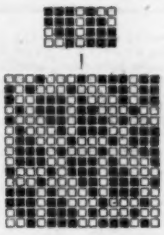


FIG. 939.

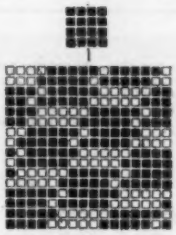


FIG. 940.

FIG. 949.

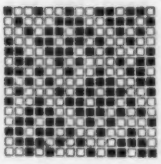


FIG. 950.

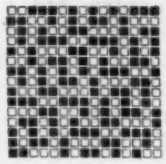


FIG. 951.

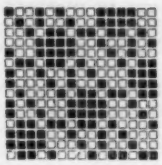
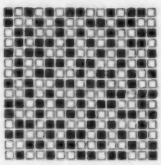


FIG. 952.



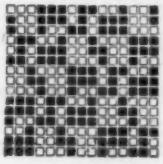


FIG. 953.

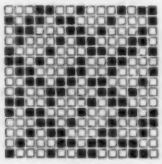


FIG. 954.

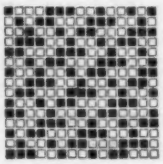


FIG. 955.

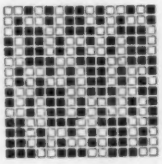


FIG. 956.

FIG. 957.

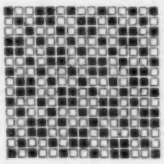


FIG. 958.

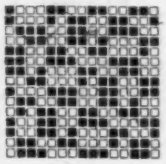


FIG. 959.

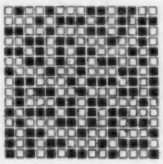
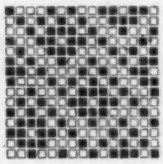


FIG. 960



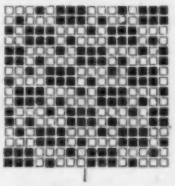


FIG. 961.

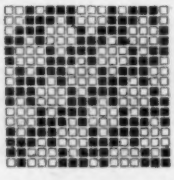


FIG. 962.

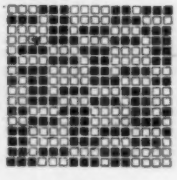


FIG. 963.

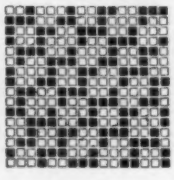


FIG 964.

Fig. 935 .. 10 x 10 5-leaf satin, 1, 4, 2, 5, 3
Fig. 936 .. 10 x 10 5-leaf satin, 1, 4, 2, 5, 3
Fig. 937 .. 10 x 10 5-leaf satin, 2, 5, 3, 4, 1
Fig. 938 .. 15 x 15 5-leaf satin, 1, 3, 5, 2, 4
Fig. 939 .. 15 x 15 5-leaf satin, 1, 3, 5, 2, 4
Fig. 940, 16 x 16 5-leaf satin, 1, 4, 7, 2, 5, 8, 3, 6.
Fig. 944 ..... 11 x 11 11-leaf satin
Fig. 945 ..... 14 x 14 7-leaf satin
Fig. 946 ..... 14 x 7 7-leaf satin
Fig. 947 ..... 14 x 4 7-leaf satin
Fig. 948 ..... 14 x 14 7-leaf satin
Fig. 949 ..... 15 x 14 5-leaf satin

(To be continued.)

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

DYEING DUCK

Editor Textile World Record:

Please give me a practical formula for dyeing duck with cutch extract. I want a deep brown shade that is fast to light. Also give me a formula for dyeing duck with cutch bought in powdered form. Is there any danger of mildew spores from powdered cutch damaging other fabrics in the dye house?

Is there any finishing works in the United States using the genuine khaki process as is used in England? I am informed that the khaki used by the U. S. Army must be imported as there are no works finishing in this country.

Atlantic (2104).

The first question is rather indefinite and it is difficult to give a formula for dyeing duck with cutch extract a deep dark shade fast to light, unless one has a shade to go by. A good, straight, dark cutch shade can be dyed in a jigger or continuous machine and a standing bath with 25 pounds cutch extract and 2 1/2 pounds bluestone for each 100 pounds of material; chrome off with 2 1/2 pounds chrome, using 1 pound bluestone and 1 pound chrome for each 10 pounds cutch used. The shade can be raised as the dyer wishes by using more or less cutch and shading with fustic or logwood.

The cheapest method of dyeing would be in a continuous machine. I know one dyer who colored a large quantity of duck a dark cutch shade, dyeing in a cutch bath, drying without chroming in one operation and then chroming, washing and drying in another operation. He obtained good dark browns this way. If one does not wish to go to the expense of fitting up to do this, the ordinary jigger or padder will do, but by all means keep standing baths of cutch. It would be a good idea for "Atlantic" to have the shade matched by the dealers from whom he intends buying the extract, as cutch extract varies in price and quality.

The formula for dyeing powdered cutch would be the same as for cutch extract, using 1 pound of bluestone and 1 pound chrome for each 10 pounds of cutch. It is an easy matter for a dyer to get the shade the depth wanted, but it is hard for me to give a formula without seeing the shade wanted. As in the case of cutch extract, there are several qualities of mat or box cutch on the market. Many dyers are using the Benzo Chrome Brown instead of cutch as it leaves the material in a softer condition and is as cheap and as fast to light.

There is no danger in using cutch on account of mildew spores. I have used and seen used thousands of tons of cutch and cutch extract and have never seen or heard tell of such a case.

There are many finishing works in the United States using the genuine khaki process as used in England, that is the chrome and iron khaki. This method of dyeing has been used in this country for many years and the establishments that make a specialty of it can do the work fully as well as it is done in England. For this class of work dyers must be experienced and the works must be provided with a steamer for ageing the goods. "Atlantic" has been wrongly informed to the effect that the khaki worn by the United States army comes from England and cannot be procured in this country. This question was taken up several years ago in the Textile World Record when for some reason or other our army officers preferred to pay a higher price for English goods than the same goods could be purchased for in the United States. The result of the agitation at that time was the substitution of olive drab, dyed in the raw stock, for the khaki shade. There are several mills in this country turning out good work and supply the army with cloth dyed to this new shade. The

production of olive drab is the result of experiments carried on by the War Department, the fabric and shade being original and the dyeing formulas the result of considerable experiment and expense.

Many of the firms who dye the chrome and Iron khaki are not anxious to do business with the United States army on this line of work. They claim that there is too much red tape and that many rejections are made for frivolous reasons. They sell their goods to cutters who are making uniforms for boy scouts, overalls and outing suits. There are several firms making a specialty of this class of work and are doing a good business. Kilarney.

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DETERMINING THE SIZE OF YARN

Editor Textile World Record:

Please give directions for weighing cotton and worsted yarn to determine the size or count.
Excelsior (2079).

The size of cottoh and worsted yarn is usually determined by weighing a known length of the yarn on grain scales and then calculating the number from the weight and length; the size is also obtained by the use of a comparative yarn table. As the calculation is too laborious to be performed at each reeling a table is usually compiled showing the weight of a given length for each count or size of the yarn. An excellent comparative yarn table is included in the Simplex yarn tables. It gives the weights of different sizes by the woolen, cotton, worsted, linen and metric systems of yarn numbering for five different lengths: 120-yard, 50-yard, 25-yard, 12 1/2-yard, 6 1/4-yard. The table is used as follows: Ex. 25 yards of yarn weighs 35 grains. In the column headed 25 yards opposite No. 35 we find the sizes to be, 3 1/8 runs; No. 6, cotton; No. 9, worsted; No. 16 2/3, linen.

To calculate the cotton number from the weight in grains of a given length of yarn: "Divide 5/6 of the number of yards by 1/10 of the number of grains; from the cotton number thus obtained the equivalent worsted number is readily calculated by adding 1/2, thus No. 6 cotton is equivalent to No. 9 worsted. The equivalent by the run system is calculated by multiplying the cotton number by .5 1/4; thus, No. 20 cotton is equivalent to 10 1/2 runs.

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SETTING A DOUBLE INDEX DOBBY

Editor Textile World Record:

I have been in the habit of setting a double index dobby as follows: I turned the loom over until the eccentric on the driving shaft is on the top center and put the straight edge from the floor, marking center of the stud on it. I then turnued it over to the bottom center and marked that. Then I measure the distance from the top to the bottom center and divided by two. The eccentric is then turned to the front center half the distance from the bottom to the top center. The rocking arm is set in a vertical position and the knife hooks adjusted so that the knives are about one-quarter of an inch behind the catches on the jack hooks. After this the shed closes even. I would like to know if there is a better way of doing this work. Dobby (2097).

The term double index dobby applies to a dobby having separate index fingers for both top and bottom jack hooks. A chain bar is used having two rows of pegholes in it, each row representing one pick so that both lifting knives are operated while the pegs in one bar of the chain are in contact with the index fingers. The two rows of pegs are staggered, one row is for the fingers that control the lower hooks for the bottom knife; the other row of pegs operates the fingers that control the top row of hooks. The barrel in which the chain works is moved in time to allow one row of pegs to operate through the index fingers the hooks that have to lift certain harness for one shed That chain bar remains stationary until the other row of pegs has operated through the alternate index fingers the hooks that have to lift the harness for the next pick.

Some people have the impression that all dobbies are built so that the first index finger is a right head dobby controlling the bottom jack hook, but such is not the case. Some makes of right hand dobbies have the first finger controlling the top jack hooks so that the observer does not always discover how the dobby is set. When this kind of a dobby is used, the chain has to be built with the second row first, otherwise there will be a break in the pattern by reason of a change in the worm gear that controls the barrel.

If the barrel is turned by a pawl, it will be necessary to have a larger pawl fixed in the upper slot of the rocking arm.

The size of the shed can be regulated at three different places: first, on the driving arm moving the stud to the inside or outside end of the slot, obtaining a smaller or larger shed; or, if a gear is used, by moving the stud in the slot nearer to the shaft to obtain a smaller shed, and moving the stud out to obtain a larger shed; second, by moving the stud to the outer end of the driving or rocking arm which gives a smaller shed; moving the stud to the inside end of the slot will give a larger shed; third, adjusting the knife hooks; the nearer the knife to the jack hook, the greater the lift.

Following is the best method when adjusting the shed: Turn the crank shaft until the first driving arm or gear, whichever is used, has the slot in a horizontal position. Then turn the stud near the center of the slot. This position is best because it is easier to move the stud in the slot than when the slot is vertical. The eye of the fixer ought to be sufficient to tell when the slot is horizontal. Set the stud in the slot of the rocking arm near the center and inclined to the inside end. Next, turn the crank shaft until the stud in the first driver is vertical, and adjust the knife hooks so that there will be 3/8 or 1/2 inch play between the hook and knife. Turn the crank shaft until the stud in the first driver is on the bottom with the slot vertical. Adjust the knife hook so that the knife is the same distance from the hook as the one first fixed. If everything is set up right, there should be an even shed, and with space left in all adjusting places to increase or decrease the size of the shed.

It is well to test setting by turning the crank shaft until the stud in the first driver is horizontal, and note if the top knife is directly above the bottom knife, or measure to see if they are an equal distance out from the end of the slot. All dobbies do not give an equal size of shed even though all the settings are equal. In such cases one knife has to be set a trifle nearer the hook than the other knife when the studs are horizontal. The adjusting of the shed is a matter of leverage, and moving the stud nearer the outer end of the slot in the first driving arm will materially increase the size of the shed. This setting also carries the knife.

As the shed movement of dobbies is more or less continuous, there being practically no dwell of the harness unless lifted for successive picks, the first driving arm should be set upright when the crank shaft is on the top center. This means the shed is wide open when commencing to pick; sometimes the shed is set a mere trifle later so that the crank shaft will be back of the top center with the shed wide open, when a narrower cloth is being woven. This setting with proportionate shedding is the best timing for the majority of cloths, as the shed is level when the reed is about 2 inches from the fell of the cloth. There should be a full shed to receive the shuttle. Set the chain barrel with the pegs just reaching the top center when the knife is about 1/4 inch from the hook and the knife coming out. This timing will cover almost every case, no matter whether the size of the shed is altered or not. I have used the foregoing settings on a variety of cloths during the last twenty-five years. Jean Paul.

THE SPECIFIC GRAVITY OF COTTON

Editor Textile World Record:

I would like information in regard to the difference in the specific gravity of Sea Island and Egyptian cotton. Would the different proportions of the elements in the different cottons vary the specific gravity? Nelson (2105).

Commercial cottons, of whatever source, consist of cellulose, together with certain other substances always found naturally in the cotton fiber, and which consist principally of normal moisture, wax and fat, plant-cell contents (protoplasm) and mineral matter. These various substances vary in quantity very greatly, according to the nature of the cotton and its source.

The composition of raw cotton is shown by the following figures:

Pure cotton fiber (cellulose)	87 to 91%
Normal moisture	7 to 8
Fatty and waxy matters	0.4 to 0.5
Cell contents	0.5 to 0.7
Ash	1.2 to 3.5

These figures vary very materially, even for the same grade of cotton, but of different localities and season of growth.

The specific gravity of pure cellulose is from 1.27 to 1.45, while that of air-dried cotton is about 1.5. In grades of cotton where the wax and fat content is high, the specific gravity of the fiber will be lower in consequence. Tests have not been made, but it is doubtful if purified cotton fiber obtained from both Sea Island cotton and white Egyptian cotton will show any material difference in specific gravity. Berwick.

FINISHING SILK GOODS

Editor Textile World Record:

Enclosed are three samples of silk goods. Please give an account of the method of finishing and the kind of machinery required.

Equinox (2064).

The grey messaline sample should first be gummed. The sizing mixture must be of very thin consistency. If put on by the spray machine it is well to use an air blast instead of steam, and then a very fine spray, to avoid any spotted appearance. The gum can also be put on by passing the cloth between a pair of squeeze rolls, the lower one of which revolves in a size trough, and with which the back of the goods comes in contact. Before reaching the goods the size on the face of this lower roll should be scraped off by a "doctor blade," so that only the merest film of size is pressed into the back of the cloth. It should then be softened and broken on the knife breaker. Next comes a run through the calender, cold, and then it is cylindered. The last two processes may be gone through twice.

The green messaline sample can be gummed and broken in the same way, and then calendered hot, the back of the goods being against the hot friction roll. It can then be polished on the back. The sheer white gauzy fabric, with the cotton weave, should be gummed between rollers, using a size with a very thin body and forcing it completely through the cloth, after which it should be dried on the tentering frame. It can be dried on a can dryer, but is then apt to be stretched out of shape and suffer other injury in the process.

Hardly any two finishers will employ exactly the same method of arriving at a specific finish, and each will do the best he can with the means at his command. All finishing plants should have facilities for gumming and breaking, and then luster is got by various pressing or calendering devices, cylindering, ironing, polishing, and other machines, sometimes hot, sometimes cold, and both with and without pressure.

Treatment similar to that outlined above should produce finishes similar to those enquired about. James Chittick.

MANUFACTURERS OF COTTON FLANNEL

Editor Textile World Record:

Can you find out for us where we can obtain a cotton flannel, similar to sample enclosed, or somewhat heavier, in lengths of 100 yards and 66 inches wide, and the price of same?

Manufacturer (2111).

The sample enclosed with this inquiry was a cotton flannel which we have analyzed with the following result:

Warp, 51 ends per inch, 17s cotton.
Filling, 44 picks per inch, 15s cotton.
Weight, 7 1/2 ounces per yard, 66 inches wide.

Any manufacturer interested in this inquiry can get into communication with the prospective purchaser by addressing this office.

WATERPROOFING RAMIE

Editor Textile World Record:

We enclose a sample of ramie fiber strip made from a ramie fiber and stiffened by a solution of gelatine. We wish to waterproof this material. Any information you can give us on this subject will be appreciated. Ramie (2098).

There are three ways of hardening gelatine and making it resistant of water. Chromic acid may be used, preferably in the form of an acidulated solution of chromium salt (bichromate of potash for instance). The acid is cheap, but its use will probably lead to a discoloration, which the inquirer may wish to avoid. Tannic acid can be used, but in practice this is found unstable and the same good result is not consistently obtained day in and day out. The reagent that promises best is formaldehyde solution such as is on the market in a strength of 40 per

cent. by volume. This should be diluted to about 8 per cent. strength for use and it will make the gelatine quite horny without changing its color or creating new difficulties. The fumes of formaldehyde irritate the eyes and nose, but it should be a comparatively simple matter to run the strips through an enclosed bath and it would be practicable to dry them by heat after the operation. Regent.

BAG AND PRINTING MACHINERY

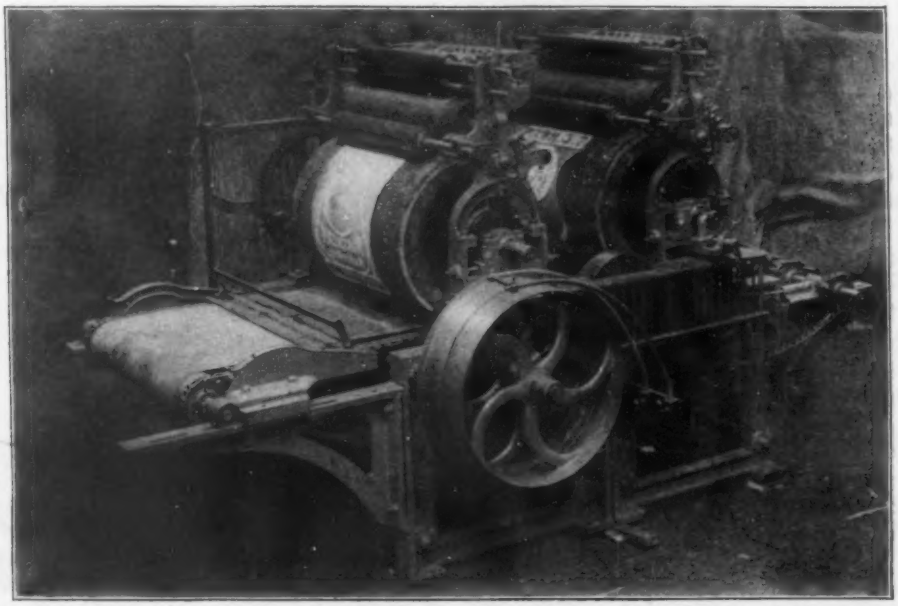
Editor Textile World Record:

I would welcome information on the machinery used for printing cotton bags in two or three colors. Printer (2092).

Our English correspondent replies as follows:

Apparently none of the letter press printing machine makers in Great Britain makes anything specially for this purpose. There is, however, a machine built by Thomas C. Keag, an engineer to the sack-making industry in Dundes, Scotland, and the accompanying illustration shows the principle of its operation. There are printing and inking arrangements for two colors. Three-color machines are rarely used as three-color effects can be got by over-printing, and it is much more difficult to secure the correct registration of three printings than of two. The machine is made with printing cylinders 21 5/8 inches in diameter and 32 inches wide to deal with fine hessian or cotton bags. The cylinder is covered with slats of beechwood to carry flexible, composition printing type. The inkers are overhead in the two-color machine and the ink is contained in movable trays. The delivery of ink is adjustable by screws, as in the machines used for printing on paper, and it is equally distributed by a train of geared rollers coated with a gelatine composition. Below the printing cylinders are impression rollers hung on springs and adjustable by screws to give more or less nip and these rollers are coated with burlap or with india rubber according to the fineness of the work that is to be executed. There is an apron feed for carrying the bag forward. The capacity is said to be 1,000 to 1,200 sacks per hour and the floor space occupied is 7 feet by 3 feet 6 inches. The cost is about $600 without accessories. Plain block letters made from composition for use in the machine cost from eight to ten cents each.

James Strand.



A TWO-COLOR SACK PRINTING MACHINE

WARMTH OF COTTON GARMENTS

Editor Textile World Record:

1. In night clothing for children, which would be warmer, bleached or unbleached cotton? Give the reason for the conclusion reached.

2. Does the mixture of a small quantity of wool in such a cotton garment assist in carrying off moisture from the body, and if so how does it accomplish this result?

3. Is perspiration carried off from the body in the form of vapor passing through the mesh of the fabric or is it carried off by being soaked up by the fabric and evaporating from the outside? Answer both as to cotton, bleached or unbleached, as to wool and as to mixtures.

All the authorities we can get hold of speak of cotton without any distinction between bleached and unbleached. Yet bleached is absorbent and unbleached is very non-absorbent, or seems so to us. Bleacher (2106).

1. The warmth of garments is dependent upon the number of air cells that it contains, air being a non-conductor of heat; consequently, in a woven fabric of given thickness the greater number of air spaces it is possible to weave into the goods, the greater the warmth the fabric will have, in comparison to a fabric of lesser thickness, but woven with the same kind of yarn. It is for this reason that flannels, cotton or wool, woven of soft yarns have greater warmth than other fabrics have of the same weight, but woven of harder yarns. It is to be doubted whether bleached or unbleached cotton will have any advantage over the other, provided the goods have no dressing. If unbleached cotton cloth is thoroughly boiled out, and freed from oils and waxes natural to the fiber, other conditions being equal as to count of yarn and weight of fabric, the apparent warmth should be the same.

2. Clean wool does not absorb moisture in the same manner that bleached cotton does, at least, not as readily. The absorption of moisture from the body by a fabric is dependent upon what is known as capillarity, the fine particles of moisture find their way between the several fibers lying close together (similar to damp sand, the water merely filling the intervening spaces), and which in turn is taken up by the air contained in the cells further away from the body.

3. The third question is partially answered above. The perspiration is mechanically absorbed by the fabric, much as a dry sponge soaks up water, and which is evaporated, upon coming in contact with the outer air.

The main point, however, is the advantage, if any, of bleached cotton over unbleached. Normal cotton in the unbleached state is a poor absorbent, and takes up moisture very slowly, if at all, while bleached cotton in any form takes up water freely, even up to 18 per cent. of its own weight, which is the factor for good absorbent cotton. It is therefore apparent that bleached cotton is the very best matérial of which to make sleeping garments, or other garments to be worn next to the skin. It is for this extreme absorbent power that surgical cotton and surgeons' bandages are made of bleached cotton, and what holds good for the surgeon should hold good for the ordinary user.

To further confirm the greater absorbing power of bleached and lack of the same power of unbleached cotton, place a clipping of each on the surface of a basin of water and note which one absorbs water first and sinks. Dumfries.

KNITTING ROUGH COLLAR SWEATERS

Editor Textile World Record:

We would like some information regarding the knitting of rough collar sweater coats, shaker knit. Please state the best method for making the collars. Knitter (2113).

When making rough collar sweater collars on the Lamb machine, I advise a 16-inch bed, cut 2 1/2 needles to the inch, running 50 revolutions. Put from 11 to 15 narrowings in the collar. This of course depends on the number of needles used in the beginning and the number of stitches to be left when the collar is finished. On a Lamb machine running at this speed a production of from three to three and one-half dozen per day of ten hours should be the result. With a good operator this production will keep up day in and day out. A production of about three dozen pair of sleeves per day on the same machine should also be made. I would advise putting the operator on piece work, which I have found will help out in the production. I have made these collars on the Grosser, paying 45 cents per day for making, paying only for perfect work, and found it a very satisfactory arrangement. Denbigh.

Knitting Department

THE KNIT GOODS SITUATION

It is believed that there is a larger percentage of the production of the knit-underwear mills for the coming year contracted for thus early than has been the case in several years. The month of December found a great many buyers in the primary markets and those who placed orders in New York, as well as those who placed them with travelers on their initial trips have bought very freely, in many cases, covering their requirements for the greater part of the year, and it is now felt that some manufacturers have made a mistake in opening the line so early and at such low prices as were quoted during the month of November. Yarns have advanced steadily since the first openings were recorded and in some instances certain manufacturers of men's ribbed and fleeced goods withdrew their samples from sale after two or three days, or after two or three large orders had been placed and there is no question but what the early buyers have quite an advantage, if the stories being told about a few of the early transactions are correct.

In our last issue we gave the opening prices of the Standard Knitting Co., Knoxville, Tenn., namely, $3.12 1/2, $3.25 and $3.40 for 10, 11 and 12 pound ribbed goods. These lines were sold up quickly and withdrawn from sale before December first and so far as we can learn, no other lines have been available at quite such low quotations.

The Mayo Mills opened their line late and on December first were getting $3.60 for 11 pound, and $3.75 for 12 pound weights.

The Morris Mills of Amsterdam priced their two threaded line of men's ribbed goods, weighing about 12 pounds at $3.75 and were sold up early in the season.

It is quoted that the Blood Knitting Co took a few early orders on 12 pound goods at $3.50, but their present price is $3.50 for 11 pound and $3.62 1/2 for 12 pound, with $6.75 for the suit.

The Oneita Knitting Co. have a line of 11 pound goods which they are offering at $3.62 1/2, and it is understood that they have about all the orders they can take care of on this line until July first.

Among the low prices made on women's 25 cent goods were those by the Phoenix Underwear Co. of Little Falls, N. Y., and their quotations were $1.80 for six pound peelers; $2.00 for seven pound, with bleached goods at 10 cents per dozen additional and 25 cents additional for extra sizes in the various lines.

The Royal Gem Mills quoted $1.85 for six pound peeler, $1.90 for six pound bleached, with $2.00 and $2.05 for seven pounds.

The Lion Mfg. Co.'s prices were $1.95 for six pound peelers in ordinary sizes with $2.15 for six pound extra size, and 10 cents additional for bleaches.

The Little Falls Mfg. Co. have discontinued making women's 25 cent grades for 1913 and will confine their production to 50 cent grade of vests and pants, and $1.00 union suits, their prices being $3.50 for ordinary and $3.75 for extra sizes in vests and pants; $6.87 1/2 and $7.37 1/2 for suits.

The LaTosca Knitting Co. are reported to be in a well sold up condition on their entire line. Their prices are $3.50 for 7 1/2 pound peeler and bleach vests and pants, and $6.50 for suits, weighing 11 1/2 pounds, all of which are made of combed yarn of their own manufacture. This concern also shows a line of carded goods in the same weights at $3.25 for vests and pants, and $6.00 for suits.

The Campbell Knitting Co. of Elmira, the control of which changed hands recently, are out soliciting 1913 business with a line of combed peeler and bleached vests and pants at $3.50 and suits at $6.75. Also showing a line of carded goods at $3.37 1/2 and $6.00.

The line of ladies' fleeced ribbed goods sold by the Regal Co. of Syracuse under the Velvet Lined Brand have been advanced

12 1/2 cents per dozen over prices made last year and now held at $3.62 1/2 for ordinary and $3.87 1/2 for extra sizes.

Buyers in general are confining their orders almost entirely to women's plain stitch goods and very few orders on tuck work have been reported. It is also noticed that the demand is for bleached goods in all grades, very few peelers being ordered.

Most lines of men's cotton combination suits are being shown at from $6.75 to $7.25. One lower priced line that has been talked of considerably is that made by the Shaughnessy Knitting Co. of Waterford, N. Y., which has been sold at $6.00, but which has now been withdrawn from sale, the production for the year having been taken up.

Among the items of interest in the underwear business is the tremendous increase in demand for men's flat fleeced union suits to retail at $1.00, and some interesting stories are told in regard to the sale of these during the season just past. One agent tells of getting a buyer to put in six dozen to start with, who had 30 cases before the season was over, and another tells of selling a man 12 dozen after considerable labor, but who now finds the customer duplicated 18 cases after June first.

HOSIERY

Jobbers have bought hosiery for fall delivery more freely during the past month than in several years. There has been practically no bartering on prices in any quarter, the principal requirement discussed being the ability of manufacturers to make deliveries, rather than to make prices. It is a seller's market in every sense of the word, but notwithstanding this condition, prices are by no means high, in fact, not as high as seems warranted by the raw material conditions and the yarn quotations being made. Some few manufacturers took orders in November at lower prices than now prevail and it is said there are some doubts in the minds of the buyers as to whether some of the merchandise will be delivered at the low prices they have been sold at.

Ribbed top fleeced goods have sold so freely for fall that many lines have been withdrawn entirely from sale and on others a recent advance of 10 to 15 cents per dozen is being obtained.

The talk of revision of tariff does not have the effect of holding down the prices. It is felt generally that any change that will be made will not become effective much before the beginning of another year and it is claimed that the continuous prosperous condition of the country at large, with its bumper crop will carry the hosiery industry well through the year 1913.

It is also pointed out that even with the reduction in the tariff, there will not be the influx of German goods that some look for, on account of the hosiery manufacturers in the Chemnitz district being exceedingly busy with other markets, and to take orders from America would necessitate dropping other business.

Spring hosiery business has reached very large figures and manufacturers are already considerably behind on their early spring deliveries. Retailers began early to place orders on spring lines and owing to the fact that consumers have continued to take light weights so freely all through the cold weather, it has had the effect of calling forward early spring shipments and manufacturers are repeatedly forced to decline further light weight business.

A prominent hosiery jobber was asked recently what is being shown in hosiery that is new. His answer was that everyone was so blame busy on staple lines that there was no time for getting into anything new, and he instanced one case of a manufacturer who now has orders enough on his books to run until March, 1914. True, the silk hosiery people are showing some lines of the new shade styled "Nell Rose," but up to the present writing not very much activity is reported on it.

KNITTED BRAIDS

In the Knitting Department of the November issue there appeared an illustrated article describing the method of knitting braids on flat knitting machines. In response to several requests we would state that the machine upon which these designs were knit is an upright knitting machine built by John Eppler Machine Works, Philadelphia.

RADIUM BRAID

BY RUTHVEN

The radium braid shown at Figs. 1 and 2 is one of the latest European novelties in dress trimming, and it is expected that it will be very popular for the coming season.

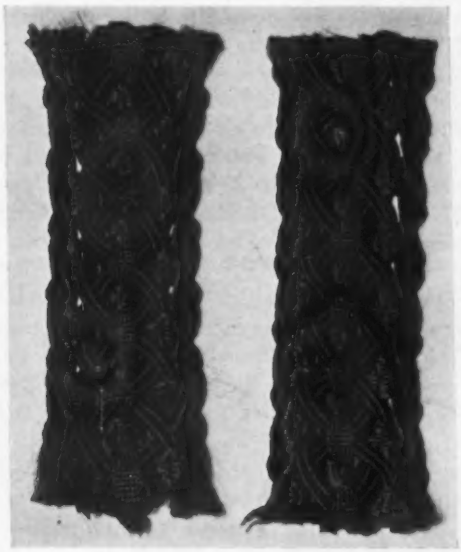


FIG. 1. FIG 2.

It is a reversible braid, each side showing a different pattern, and is made on what is called a 16-line radium or bicircle braiding machine, which is the most complicated of this class of machines. Besides having all the spindles, weights, beaters, needles and form-holders that are used on other braiding machines, this machine has two sets of cards which are similar, but much smaller than those used on looms for making woven designs. They perform the same functions for the radium braider that the pattern chain or card does for the loom. All plain or flat braiding machines have one circle for the spindles to travel in, whereas the radium braiding machine has two circles, allowing the designer to make a greater variety of patterns, and also produce all other designs made on the single circle machines.

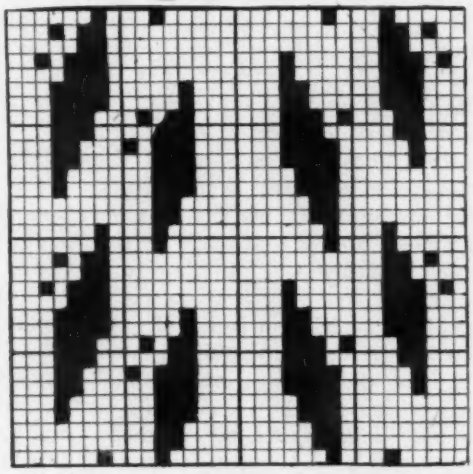


FIG. 3.

The design is first drawn on drafting paper similar to that used for woven fabrics. The draft for the woven fabric usually resembles the pattern in the cloth; whereas the radium draft appears entirely different from the finished article, as will be seen by comparing the draft, Fig. 3, with the finished product, Figs. 1 and 2. The pattern is then transferred to the cards, Fig. 4, by punching holes to correspond with the draft. The cards are laced in the usual way, and placed in their respective positions on the right and left sides of the machine. They control the switches that allow the spindles carrying the various materials to pass from one circle to another. Where the holes are punched an

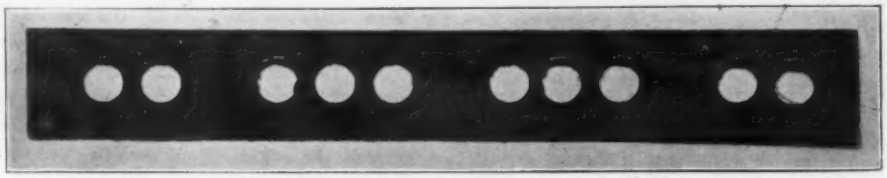


FIG. 4.

arm raises the pins that open the switches and causes the spindles to travel to the right or left according to the design. Where the cards are blank the spindles continue on a straight line. The 16-line radium machine on which this design is made has 32 switches, 16 controlled by the right hand motion and 16 by the left. There are 36 spindles containing the materials used for this design, 32 of which carry 3 ends each of 150 denier artificial silk, while 4 carry 1 end each of soutache, composed of two ends of No. 9 cable cord covered with 3 ends of 150 denier artificial silk. There are also eight ends of filling which act as binders and help to develop the design. The 8 warp ends are composed of 6 ends of 2/20s mercerized cotton covered with 16 ends of 150 denier artificial silk and are commonly known as "beaser." The center warp which gives the design its novel appearance is made on an 8 line plain braiding machine and is composed of 33 ends of 150 denier artificial silk.

THE WEINERTH THREAD CUTTING AND TURNING MACHINE

THE WEINERTH HIGH SPLICED HEEL AND SOLE FLOATING THREAD CUTTING AND TURNING MACHINE

One of the slow processes involving hand work in the manufacture of high spliced heel and double sole hosiery, has heretofore been the cutting of the floating threads. Every piece had to be turned by hand and a girl with a pair of scissors had to snip off these threads, making two cuts for each stocking.

SHOWING FEATURE OF THREAD TAKE-UP ARRANGEMENT

This double operation of turning and cutting is now reduced to one, and is performed by a machine patented Sept. 17, 1912, the invention of George S. Weinerth, which has been perfected and is manufactured and sold by the George S. Weinerth Machine Company, 860 North 12th St., Reading, Pa. The appearance of the machine and its mode of operation are shown in the cuts accompanying this article. It is a very simple contrivance and in effect it provides two pairs of scissors and means of quickly gathering the threads together in a bunch and snipping

them upon the pressure of a lever. In operation the stocking is stripped over the barrel or cylinder of the machine; as this is done the floating threads are caught in the V-like opening, guided to and assembled in the side

SEVERING THE THREADS, READY TO TURN

slots, shown in the cuts, drawn taut by an adjustable tongue-like steel spring on the inside, and when they reach the proper position, by a touch upon a lever by the operator, the threads are cut on both sides by the two pairs of shears operated by the lever. Immediately the bottom of the stocking is grasped, pulled off the cylinder and turned ready for the next process of manufacture, the entire operation being so quick that it is performed many dozens of times during the time it takes to tell about it.

It will be observed from the illustrations that the machine is so adjusted, that the movements of the operator are natural and easy, avoiding all lost motion, and tend to become automatic, thus promoting speed and eliminating fatigue.

The advantages of this machine are not only in its speed, which increases the capacity of an operative some three or four times, but in the evenness with which the threads are cut and the absolute certainty that the stocking itself will not be accidentally cut, as is often the case in hand work. The machine is capable of taking care of any kind of stocking. The barrel or cylinder is made smaller than the cylinder upon which the stocking is knit, so as to avoid any stretching which might embarrass the future operations of manufacture. By reason of the slot's being adjustable and of the adjustability of the inside spring the threads can be drawn tightly on any size of stocking, cut

TURNING THE STOCKING AFTER THREADS ARE SEVERED

evenly and closely without the least danger in injuring the body of the fabric.

The simplicity of the machine is a strong point. Its parts can be examined and understood in a minute. The makers claim it is thoroughly fool-proof. We are informed that in actual test a girl, after two or three

days' experience, cut over two hundred dozen of ladies' hose in a day, and experienced operators easily turn out over three hundred dozen as against eighty to ninety dozen in the old way. After a little practice it is operated automatically and almost without thought on the part of the operator. As a stocking reaches the proper position upon the machine the hand presses the lever and following that with one quick motion,

THE FINISHED PRODUCT

the stocking is stripped off and turned, while the other hand is starting to repeat the operation.

The only parts of the machine that need attention are the shears, which need to be sharpened once in every three or four months under ordinary conditions of use. It is now being installed in many of the largest mills in the country and the company is rushed with orders.

The total value of flax produced in Western Canada has grown from $1,457,000 in 1908 to $19,467,000 in 1911.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

KNITTING MEMOIRS

BY CYMBAL

(Continued from December.)

Another bad feature of this mill was the poor system for heating. It has been proved many times that a knitting frame will not start well on a cold morning, and we had trouble every cold snap. There were three steam pipes around the room, which was not nearly enough. The belts would slip and slap around if they did not stand still on the pulley, and it was generally around noon before things got to going right. I advocated more steam pipes. I was not there the following winter, but learned that seven more steam pipes had been added and the steam was kept up all night.

We also had trouble with the shaping chain and ratchet arm, and the lengths were very seldom what were wanted. The chains would slip, throw a link too far or not far enough. The yarn would run light or heavy, causing the garment to vary in length. I had the habit of weighing the garments to find where the fault lay, using the equivalent scales, one garment giving the weight of a dozen. This chain motion, with its many changes, is hardly known today as the one in use now does not and cannot vary, as it gets its length from the cloth itself.

In 1905 I worked for a time in the Mohawk Valley in a small mill that was notorious among boss knitters as a hard place. Not because the job was hard, but the firm were always finding fault and could not get along with anyone. I stood on a corner one night when an agent for a machine builder came along. We were great friends, and during our talk I told him about the firm. He advised me to go down to a mill in a small city in Virginia, where a knitter was wanted. It did not take me long to get a start then, and so about four days later I

walked into the Virginia mill and was surprised to find the superintendent was an old friend. We sat down and talked things over. It seems he had been there only a short time and had not straightened out the tangle. He had a lot of cheap help. The superintendent was a good man, in fact too good for that job. He had told the firm a few days before that he could send North and get a man that would get the knitting room going and keep

FIG. 1.

it going, and he could spend his time in an easy chair. He told the truth as events will prove.

We walked through the mill, found the finishing room without work, and the cutters sitting on a table waiting for something to do. They had averaged about four hours work a day for some time. We went through the engine room, and the engineer looked like a Georgia cracker, six feet high, with a chew of tobacco that looked like a tumor on one side of his jaw. He wore a black-white shirt and football hair. But he certainly was an artist. The fly wheel of the engine was red and the cylinder green, with a few other colors added for effect. A rainbow had nothing on that engine room.

We went on through a sloppy bleach house to the knitting room. It was a fine room, well lighted and everything placed to good advantage. There were about 20 knitting frames there with perhaps four or five going, and it was a toss up whether they were making lace curtains or plain rags. I looked over a few of them, but without touching anything. We went back to the office, and on the way I heard a girl ask the forelady in the shipping room for some work. The forelady said, "Take an armful of those," pointing to a pile of goods on the floor. She got an armful. Difference in style or size did not matter. The forelady told her to be sure to put forty dozen in the case. I looked at the superintendent and he smiled at my amazement. He explained by saying that there were not many firsts in the mill so they put forty dozen in a case and let it go at that, all one size or all sizes. I found out later he could do no different, but we weeded out many of the inefficient help and raised the pay of others to get more work out of what we did have. I started work at noon on a 11 inch, cut 10 to inch, 28 yarn, 36 gauge, 42 hook machine. I could hardly turn the frame and when it did turn I could hear the butts of the cylinder needles snap. I took that frame down and began work at the bed plate, and it was a good thing I did. The oil they had used, perhaps it was glue, was spread in layers over the bottom plate, and there were a few pieces of broken butts between also. No doubt these pieces fell through the oil hole. I cleaned and put the bed plate back and looked at the cylinder. The slots were packed hard with lint and dirt and a hammer and slot spreader had to be used to force the stuff out. The dial was as bad. The frame had not been cleaned for a year. I learned later that the boss knitter had four months' experience as a knitter and before that was a fireman on a tug boat. He might have been a good fireman, but he was not a very good knitter.

I finally got the frame set up, put new needles in, started it going and began thinking of an earthquake, for that frame began to shake and rock and all but tip over. I stopped it and sat down to think. I had not had anything strong to drink, but that frame certainly acted queer. I tried it again with the same result. I then noticed that the belt shifted slowly and it dawned on me that the belt was a trifle tight. I put in two inches when I noticed the pulley was about two inches out of true. I stopped and fixed the pulley and tried to put the belt on. I had to put in two inches more and then everything started right. If I had had a smash with

that tight belt it would have torn the frame apart.

I next tried the stitch, loosened the take-up and away we went. I took a piece of the cloth to the superintendent, he in turn took it to the office and in a few minutes there was an audience around that frame. This frame ran steadily for months, making good cloth.

On another frame I found the cylinder stitch cams ground on a small, coarse emery wheel. The wearing face of the cam was rough and uneven, Fig. 1, and I could never understand how I could turn it the few inches I did. I took that frame down, cleaned all the parts, and put it together again, all but those stitch cams. I bought a fine emery wheel and ground the cams straight and even, smoothed them and tried them in the frame. They were not all the same, but I took a chance putting the cloth on and started up. The cloth did not look right, but I let it run until I could get a new set of cams. I also added about three inches to the belt as I do not like tight belts. I was about three months going through the frames, but I did a good job, for after I got them going they ran fourteen months without any trouble. In fact I took charge of the bleach house to keep busy, and when I left there were over 200 rolls ahead of the bleach house. I felt a touch of the "wanderlust" one day and quit, going to Brooklyn and about a year later on Broadway, N. Y., I met the superintendent of the Virginia mill. He said he had stood it long enough and had quit. Six months later the mill was up for sale.

MACHINE USED FOR FINISHING SWEATERS

Editor Textile World Record:

I am sending you under separate cover a shaker sweater. Please examine and let me know the kind of machine used in finishing and the make of looper used for bottom and reveres. The over-edging of the cloth seems to be done with a double needle. What make of machine is it? Also what style of press was used on the garment?

Maybury (2107).

After careful examination I would say that the collar on the sweater submitted was knit to the body by hand and the lapel knit to the collar in the same way. The side of the lapel and button strip, commonly called a facing, is looped to the body with a Record looper, 2 1/2 points to the inch, which is sold by the Grosser Knitting Machine Co., 260 W. Broadway, New York. The sleeves are looped to the body on the same machine, as is also the hem at the bottom. The

A SHAKER KNIT SWEATER

pockets are knit in by hand, and also the cuffs. The edging of the seams is done on a Merrow Style 60 A D machine, built by the Merrow Machine Co., Hartford, Conn. The button holes are made on a Reece button-hole machine and the buttons are sewed on with a button sewing machine. In regards to the pressing, I have used a Hoffman press built by the U. S. Hoffman Co., Syracuse, N. Y., and obtained good results.

Delmar.

MACHINE FOR KNITTED ASTRAKHAN

Editor Textile World Record:

Can you give us some information on the manufacture of knitted astrakhan, like sample enclosed, particularly the name of the builders of the machine which does this work? Columbia (2110).

The knitted astrakhan cloth of which sample was enclosed can be made on a spring needle circular machine of the Crane, Tompkins or Gormley make. The back of the cloth is the face as knit, and is usually composed of white cotton yarn in two

threads, one face thread being used for a binding thread to tie in the astrakhan thread in the same way as the backing thread in plush or fleece knitting. The astrakhan side is composed of luster worsted yarn of a coarse number. The back thread is put in by using a backing burr or wheel. It is not tied in regularly, but at irregular intervals; for instance every fifth or sixth needle for several times and then every seventh. The more irregular the tying in is done the better astrakhan effect when finished. The curly effect of the astrakhan thread comes naturally after the dyeing and finishing and is due to the curly properties of the luster worsted yarn and not through any process or method of knitting. These goods were very extensively made in the years 1884 to 1888 in mills around Philadelphia. Some mills made them on flat knitting machines similar to a loom, but in the mills in New York State they were knit on spring needle circular machines. After being knit the goods were usually sent to dyers in Philadelphia where they were dyed and finished similar to woven goods and sold by the yard in single and double widths.

A "SPLIT-TRIM" SWEATER COAT

A new patent split trim for sweater coats, which the Goodenow-Brookfield Knitting Company of Kansas City, Mo., has been using throughout the season on its knitted garments, is attracting particular attention among manufacturers with similar knitted output.

The trimming, Fig. 1, is knitted about two

FIG 1.

inches wide with an opening of about half an inch on one side, the other side being made a single edge. All edges are selvage edges. The edge of the garment is placed in a half-inch opening, and with only one operation the trimming is put on, Fig. 2. Either hand made or machine made buttonholes can be used.

The Goodenow-Brookfield Knitting Company makes twelve claims of particular advantage in using this trim: that it saves two-thirds of the time as compared with ordinary methods; that no basting or pinning in place is necessary before going to the machine; that it can be fed through a guide, either from a large roll back of the operator or can be cut to certain lengths and attached when the coat is assembled; that no facing is necessary; that it requires no hand work; that it saves from one to two operations; that it is applied with one stitching; that it

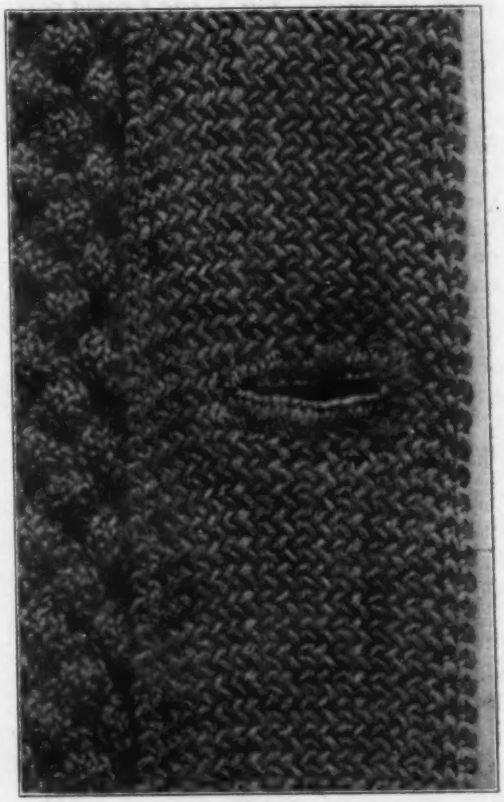


FIG. 2.

can be put on with a straight stitch or flat bed sewing machines; that labels can be inserted along with it, thereby saving an additional operation; that it can also be used for collars; and that the various savings of labor increase the possibility of production. The Goodenow-Brookfield people are preparing to place the trimming with certain manufacturers on royalty basis.

Dyeing, Bleaching, Finishing, Etc.

CHROMIUM AS A MORDANT IN WOOL DYEING

BY ARBOGAST

Many of the coloring matters in use would be practically valueless as dyes without the aid of a mordant. Nearly all the natural dyes, the wood extracts and a great many artificial dyes, like the alizarine and anthracene derivatives, could not be used unless there was some means of making the color more permanent in some cases and developing it in others. If used alone they would make only a dirty stain that would wash off or fade out very quickly.

Potassium bichromate has the property of combining with the wool fiber and with the dyestuff forming color lakes that are insoluble in water and give the required degree of fastness and brightness. It is only in the form of chromic oxide that chrome combines with the dyestuff, consequently the bichromate must first be reduced. Potassium bichromate is a powerful oxidizing agent and in the presence of organic substances will oxidize them with the consequent reduction to chromic oxide.

The wool fiber itself has the property of reducing the bichromate when boiled with it, but as the bath is never completely exhausted, only one-third of the chrome being taken up by the wool, there would be considerable waste of chrome if the baths were not strengthened up by the addition of more chrome and used for subsequent lots. The difficulty of determining just how much to add makes the process very uncertain. The addition of sulphuric acid to the bath aids materially in forcing more chrome onto the wool and consequently exhausting the bath almost completely. The action of the acid being so energetic the chrome is reduced too rapidly and is apt to be deposited to a greater extent on the more exposed parts of the material, causing uneven dyeing. The excess of chrome deposited on some parts causes a greater development of dyestuff. Where the subsequent processes of manufacturing would have a tendency to blend and even up the dyed material, the use of sulphuric acid may be desirable on account of the lower cost. About 3 per cent. of chrome and 1 1/2 per cent. of sulphuric acid should be used for a full shade, and proportionally less for lighter shades. Chrome is not a suitable mordant for all colors, but for a full shade of blue, brown and black or green it produces colors that are very fast to light, soaping, steaming, dilute acids or alkalies and the different finishing processes. Tartar, cream of tartar or argol, as it is sometimes called, the acid potassium salt of tartaric acid, is the ideal chrome assistant for piece dyeing, as in that operation a level shade is of special importance. It reduces the chrome slowly, making the mordanting much evener than any of the other reducing agents, although the tartar and chrome mordanted piece is paler in shade than the others. When the dyestuff is added a fuller and richer shade is produced, showing that a better combination of chrome and dyestuff has taken place.

Lactic acid, a mild organic acid, is also a very good assistant, reducing the bichromate very slowly yet more quickly and thoroughly than the tartar, but it is not as good a leveling quality, leaving the material a somewhat greener shade.

Oxalic acid, a more active organic acid, has a greener shade than is produced by the tartar or lactic acid.

Formic acid, one of the strongest of the organic acids, is also extensively used and is in about the same class as sulphuric acid. It is a very rapid reducing agent, thereby tending to uneven mordanting and leaving the material very green in shade.

From a series of experiments conducted in the laboratory with various percentages of chrome and the different assistants, I found that tartar and lactic acid gave about the same results. Hanks of worsted yarn dyed with equal amounts of dyestuff showed

no difference. A solution of 1 1/2 per cent. lactic acid, 1/2 per cent. sulphuric acid and 2 per cent. of chrome gave a decidedly thinner shade, but slightly better than dyeings with chrome and oxalic acid or chrome and sulphuric acid.

There are several methods of using the chrome mordant. First in importance is the chrome bottom process. A good formula is: 3 per cent. chrome and 2 1/2 per cent. tartar; start cold, bring to a boil and boil for at least an hour and a quarter, wash off and color.

Next comes the afterchrome method. The material is colored in the usual way with dyestuff and acid. When the dye bath is exhausted, cool down and add chrome equal to half the weight of the dyestuff, but not over 3 per cent.; bring slowly to the boil and work at a boil for forty-five minutes.

The chromate and metachrome processes are known as the one bath methods. Dyestuff, acid and chrome are all added to the bath together. Only a very limited number of dyestuffs are suitable for this process, which is generally used for mode shades. From 5 to 10 per cent. of acetate of ammonia should be added to the bath as a chrome assistant, the amount depending on the depth of the shade desired. In the metachrome process the bath must be started neutral. The exhaustion of the dye bath is seldom complete when the chromate or metachrome process is used.

The chrome bottom process gives the fullest and richest shades with the same percentage of dyestuff. The afterchrome colors, while thinner looking, are decidedly faster to milling, indicating that the dyestuff combining with the fiber and then being developed with the chrome makes a more complete combination.

The chromates and metachromes, while giving shades of good fastness, do not stand the tests required of the first two. The success of any of the mordanting processes depends as much on careful manipulation as on the chemicals used. While it is necessary to have proper proportions of the different compounds for the required shades, the best formula will go wrong if proper care is not used in applying it. Time is an important element in piece dyeing. If the bath is too hot to start with, the reduction of the chrome will proceed too rapidly, no matter what agent is used, and uneven dyeing will be the result. Start the bath at about 80° F., and raise to a boil in not less than an hour; boil for at least an hour and a quarter to insure good leveling; next see that the material is thoroughly washed, freeing it from all loose chrome, otherwise a lot of loose color will be deposited on the goods, causing the color to crack. The exact composition of the materials not being known, it is necessary to use a greater amount than is theoretically called for, hence the necessity of thorough washing to remove all surplus.

The afterchrome method exhausts the dye bath more thoroughly before the chrome is applied, there is no loose color deposited on the fiber, and a chemical combination of the fiber, dye and mordant is assured.

Potassium bichromate was first used as a mordant in wool dyeing about 1830, but is being displaced by the sodium compound which did not come into use until nearly fifty years afterwards. The latter costs less, but, as it absorbs moisture from the air, it has to be stored very carefully, otherwise very different quantities of the chemical will be found in the same weight at different times. If it is carefully handled sodium bichromate gives as good results as can be obtained with the potassium compound.

Below is a comparison of the solubility of the two chemicals in 100 parts of water:

TABLE OF SOLUBILITY

Temperature	32° F	176° F	212° F
Potassium bichromate	5	73	102
Sodium bichromate	107	143	163

Equivalent amounts of the various acids to use in place of 2 1/2 per cent. of tartar in a dyeing requiring 3 per cent. of chrome would be:

Lactic Acid	per cent. 3
Oxalic Acid	2
Formic Acid	1½
Sulphuric Acid	1½

To sum up the matter: Do not use too much chrome, as there is great danger of

over oxidizing the wool, causing it to feel harsh, or causing precipitation of the dyestuff and consequent waste of coloring matter.

Tartar will give shades with a better bloom than any of the other reducing agents. An excess of tartar will not be injurious; the only objection will be a waste of material. Lactic acid, while not having as good leveling qualities, yields colors somewhat faster than does tartar. Oxalic, formic and sulphuric acids, while exhausting the mordanting bath more completely and giving the mordanted material the appearance of having more chrome on it, do not produce as good shades, and a very slight excess of either of them will result in very poor colors.

A satisfactory mordant must have the chrome in the proper condition to combine with the coloring matter. The stronger acids seem to fail in that respect. They supply the quantity but not the proper condition.

COTTON BLEACHING

BY ERNEST C. T. BRICK

Much has been said lately about the inferiority of chlorine compounds in bleaching cotton. The objections to chlorine bleaching are that the cotton is tendered and turns yellow with age. Chlorine bleached cotton is always tendered, but the tendering may be so slight that it will not interfere with the durability of the goods. There are two chlorine compounds used for bleaching, calcium hypochlorite (chloride of lime) and sodium hypochlorite.

The method of bleaching may be outlined as follows: 1st, Boiling and preparing for bleaching. 2nd, Chemicking. 3rd, Rinsing. 4th, Souring. 5th, Rinsing. 6th, Soaping.

In the first operation all the natural and other grease must be removed. It is during the second operation that many goods are tendered. Part of the goods may be exposed to the air too long, in consequence of which the cotton is converted into oxycellulose by the action of the oxygen in the air. In this way the goods are tendered.

While passing from the second to the third operation the goods are sometimes purposely exposed to the air for a long time to obtain a better white. This should not be done, as part of the cotton will be oxidized and tender goods are sure to be the result. To the third and fourth operation we must look for the cause of the goods turning yellow when chloride of lime is used. The goods are often insufficiently rinsed after chemicking. When they are passed through the souring bath chlorine is liberated and insoluble calcium sulphate is formed in the fiber. This lime salt cannot be removed no matter how often the goods are rinsed and such goods are sure to turn yellow with age. Some bleachers omit the rinsing altogether, and pass the goods into the sulphuric acid bath. In doing this they fix calcium sulphate on the fiber and this lime salt will soon cause the goods to turn yellow. After the goods come out of the souring bath, they must be rinsed well. For soaping a good soap should be used. If the goods are to be tinted, it is best to do this in the soaping bath.

When goods bleached with sodium hypochlorite are passed into a sulphuric acid souring bath, chlorine is liberated and sodium sulphate or glaubersalt remains in solution. Glaubersalt is readily soluble in water and any of it retained in the fiber will be removed by the rinsing after the acid bath. Goods bleached with sodium hypochlorite free from lime cannot turn yellow. Yellowing is nearly always due to the presence of lime salts.

By using sodium hypochlorite it is possible to obtain as good white in a short time and at a lower cost. The goods will lose but little in strength if they have been manipulated properly.

If a small profit on the goods forbids the use of sodium hypochlorite as a bleaching agent, it is possible to obtain a white which will not turn yellow, with chloride of lime, but it requires great care. In that case muriatic acid should be used as a souring agent. Muriatic acid will form chlorine and calcium chloride when acting on chloride of lime. The calcium chloride is soluble in water and it can be removed from the goods by rinsing after the souring bath.

A DYEING MACHINE FOR RAW STOCK

A dyeing machine shown in the accompanying illustrations works on the circulating principle and is designed to give a uniform color throughout all parts of the material. It has been patented by W. Sackett Duell, treasurer of the Klauder-Weldon Dyeing Machine Co. of Amsterdam, N. Y., and is being built by that company. Fig. 1

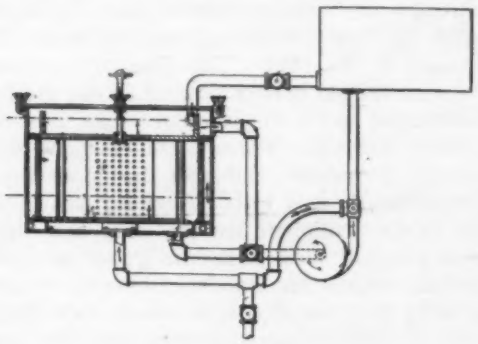


FIG. 1.

is a side elevation of the machine; Fig. 2 a plan view of the dyeing vat taken on the line, A-A, of Fig. 1. An amount of liquor is run into the tank sufficient to fill it to a point above the orifice. The three way valves are positioned so that when the pump is started the dye liquor is drawn from the upper portion of the tank to the pump and forced to the lower portion of the tank, thence circulating through the tank, this circulation being continuous. The liquor in the tank may be delivered into the reservoir.

When the material to be dyed is placed in the tank and the dye liquor circulated, the liquor tends to flow in more or less well defined currents or channels, a feature which is especially objectionable. The machine provides for an even and equal flow of the liquor through all parts of the material, so that a uniform color is produced throughout the stock. The tank has a false bottom spaced from the bottom of the tank and providing for the distribution of the dye liquor. The material to be dyed rests on the base and said base is perforated, causing the dye liquor to be more uniformly distributed throughout the material.

In order that the dye liquor may reach all parts of the material, the receptacle is provided with passageways discharging into the material by means of perforations or partitions spaced from the walls, of the tank and from each other, whereby the receptacle comprises alternate perforated and solid passageways communicating with the space below the false bottom and opening against the material through the perforations. To establish these passageways, the base is recessed at different points and the partitions are aligned with the edges of the recesses The upper ends of the passageways are closed by plates secured to the wall of the tank. The material to be dyed is packed in

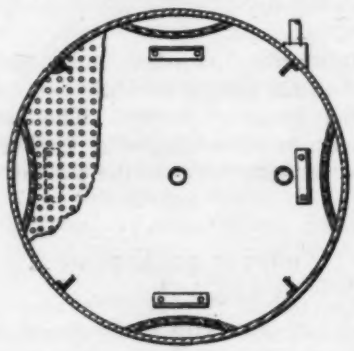


FIG. 2

the receptacle as uniformly as possible, the cover and top are applied, and any pressure on the material is obtained by turning the rod by means of handle, as shown. The vat is filled with dye liquor. When the liquor has risen to the proper height in the vat or tank, covering the material and the orifice, the valves are adjusted to establish a continuous path through the pump to the central orifice in the bottom of the vat. When the pump is driven in the proper direction, the dye liquor will be drawn out of the upper portion of the vat and forced into the lower portion, entering the space below the false bottom and spreading in all directions, passing through the perforations in the false bottom into the material.

The liquor also enters the passageways via the recessed portion of the base, and enters the material from the side through the perforated partitions. In this way the liquor

is made to penetrate the material both longitudinally and transversely, and is constantly drawn through the central opening in the cover. The tendency of the liquor is to converge toward the central opening from all sides. Thus the body of liquor masses itself as it flows toward the outlet and there is no tendency to separate into defined currents or channels. The material is pressed against the solid portion of the cover and the liquor forced to pass through the material to gain an outlet. Should the material be pressed away from the sides by the entering liquor, such as might occur by improper packing, the baffle plates will prevent the liquor channeling around the stock, and assist in directing it through the material.

The tank may be made to operate on less material than will fill the tank, as the cover may be lowered some distance below the upper edge of the partitions.

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FANCY MIXTURES FOR YARNS AND COATINGS

BY TECHNICUS

From the Dyer and Calico Printer

The natural white of wool is sometimes objectionable, and bleaching and tinting so improve it as to be worth while. But the tinting should never be so deep as to deserve the name of dyeing. For milled goods the milling sometimes acts as a tinting. This has often to be guarded against; on the other hand, there are times when the phenomenon might be taken advantage of far more than it is at present. Take the case of two Oxford greys, black and white mixtures. The black in one is dyed with a black dyestuff very fast to milling and potting, for example, Diamond Black PV. For the other a dyestuff less fast to milling has been used, such as the Diamond F Black.

The two greys will come from the process quite different, and the more severe the milling the greater the difference. The PV Black will not have stained the white, but the F black will have tinted it. If the goods are also subjected to potting the PV will still not have bled, but the F will give the white a deep stain. The difference in the two blacks is accentuated by another phenomenon. Long-continued milling in soap and soda, especially at a moderately high temperature, emphasizes the yellowish drab of natural white wool. This is precisely the worst way in which the color could alter, and, in many cases, is a distinct handicap to the dyes fastest to milling and potting. This means that in these cases the firm which has adopted what it has thought has been the fastest dyestuff, and, perhaps, the most expensive, might find its patterns not so acceptable to the merchants and tailors as those of competitors who had used a dyestuff cheaper and less fast to milling.

It does not follow, of course, that the dyestuff least fast to milling is also least fast to light. In that respect what is inferior in the one property may be superior in the other. Logwood, for instance, is very fast to milling, and is considered very fast to potting also, but so far as the writer has tried them, the afterchrome blacks on the market are faster to light. The milling fastness of the constituents of a mixture must, as far as possible, be in accord with the nature of the mixture. In the case of the Oxford grey just adduced the dyestuff that is likely to stain the white with a tint of blue or violet would be the best. But for a mixture of black and bright orange this would never do. The bright orange would be dulled. A fast to potting black would here be the thing, and it would leave the orange bright and lively.

In the case of complementary colors this is often a difficulty. Red and green, for instance, if they bled into each other would spoil their effect, and generally, a dyed wool stains a tint of its own nature—crimson stains pink, a dark blue stains a light blue, etc. Exceptions to this rule are chiefly where two or more dyestuffs have been used to get a shade. A green compounded of a blue and yellow may bleed from one constituent only, staining contiguous white threads blue or yellow instead of green. When working with tertiary colors mixed with primaries, the bleeding can sometimes be arranged to help the bright shade it will stain.

Sometimes a very little thing will mean all the difference between market success or

failure. The writer had a case in point, one of these combinations of black and a bright scarlet, but it was a question not of fastness to miilling, but to rubbing. The goods were of the railway carriage cloth type, the pattern being worked in solid black and scarlet yarns. As the backs of these goods consist of sized linen or cotton there is no wet finishing, not even a mild scouring. Fastness to light is however a desideratum. For the black yarn, dyed in the hank, one firm used an afterchrome dye, which had been their standard black for years, but they found their results were inferior to those of a competitor. The black yarn was scoured after dyeing and before weaving, this being a hitherto unknown expense, but still the inferiority remained. In the rubbing of the threads together during the motions of the loom, the scarlet became slightly dirtied. And at last an acid black was adopted. It would fade much more quickly on exposure. It would probably not stand more than a small amount of washing, especially if ammonia were present, but on the essential point it gave the desired result and so had to be adopted. Next there is a question of adopting the constituents of mixtures to that very important matter, size of lots. To produce a large lot of patterns may be an achievement likely to please a firm's customers, but it may easily be a source of expense, worry, and loss in the dye house. As the previous article showed, an infinite number of mixtures can be made from a few standards. The number of standards for the dyer ought to be kept as low as possible, but they can be changed each season. In fact this is a very practical way of meeting that monotonous request for effects "absolutely new this season."

To give concrete instances: Suppose that good color, Anthracene Brown, is run one season. Then Metachrome Brown might be adapted for the season after, and following that afterchrome browns will enable changes to be kept up for another year or two. These browns vary a little in underhand appearance, and also have each their peculiar characteristics overhand and in gaslight and when from one season to another a complete change of dyestuffs has been made.

(To be continued.)

THE PERMANENT FIREPROOFING OF COTTON GOODS

By Dr. William H. Perkins, Manchester, Eng.
Before the International Congress of Applied Chemistry.

(Continued from December.)

Some of these properties and statements may be easily tested by each of you independently with the samples in the little book which you received on entering the hall.

This permanently fireproofed flanellette is now manufactured on the large scale by Whipp Bros. and Tod in Manchester under the name of "Non-Flam" and, although its introduction has been slow, it is being increasingly used and will, in all probability, ultimately entirely replace the ordinary inflammable variety. One of the difficulties experienced in connection with its general introduction is the fact, that, owing to the high price of tin, which is now quoted at about £210 or $1,050 per ton, the cost of the process is not inconsiderable but, even with tin at this high price, the extra cost is not more than 1d. (2 cents) per yard or about 1 1/2d. or 2d. (3 to 4 cents) for a child's garment. I have here on the table, rolls of "Non-Flam" of different qualities so that anyone who wishes for a larger sample than is contained in the little book can easily obtain it.

It is hardly necessary for me to say that this process can be applied to any cotton fabric and is especially valuable in connection with muslin because this material is so often used, especially on the stage, for dresses which, on account of their flimsy nature, are naturally highly inflammable. I have here two strips of the same muslin, one of which has been treated by the "Non-Flam" process without in any way affecting its ordinary properties and was then washed 10 times and the difference in inflammability of the two samples is very striking. While the first sample is highly dangerous, it is difficult to imagine that harm could come to

anyone who happened to be dressed in the treated material even if, by accident, a lighted match came in contact with the dress. Another direction in which the process may be used with great advantage is in connection with lace curtains. Many disastrous fires have occurred by reason of the ignition of lace curtains and there can be no doubt that the greater majority of these would have been avoided if the curtains had been treated by the "Non-Flam" process. As an example of this, I have here a strip of lace curtain which has been subjected to the process and then washed a number of times and it will be seen that if such material did accidentally come in contact with a lighted match, the danger of fire is reduced to a minimum because even supposing the material did catch fire, the flame is put out at once by the least shake.

It seems to me that it is obvious that, if this process or some other process capable of giving the same protection from fire, was adopted in the case of all inflammable cotton goods and especially in the case of material used for garments, many disastrous fires and the appalling loss of life, especially among young children, might be avoided and it is for this reason that I have ventured to bring the subject of the permanent fireproofing of cotton goods to your notice this afternoon.

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Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 1

YELLOW ON WORSTED YARN

Titanium Tannin Yellow on 100 lbs. worsted yarn. Prepare the dye bath with

½ lb. Titanium Mordant.
(Eastern Chemical Co., 37 Pittsburgh St., Boston.)
1 lb. Tannic Acid.
4 lbs. Sulphuric Acid.
20 lbs. Glauber's Salt.

Enter at 110° F. and dye at a boil for forty minutes.

Titanium Tannin Yellow combines cheapness and simplicity with extreme fastness.

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Recipe No. 2

YELLOW ON WORSTED YARN

Titanium Tannin Yellow on 100 lbs. worsted yarn. Prepare the dye bath with

⅛ lb. Titanium Mordant.
(Eastern Chemical Co., 37 Pittsburgh St., Boston.)
¼ lb. Tannic Acid.
3 lbs. Sulphuric Acid.
20 lbs. Glauber"s Salt.

Enter at 110° F. and dye at a boil for forty minutes.

Titanium Tannin Mordant combines cheapness and simplicity with extreme fastness.

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Recipe No. 3

BLACK ON WOOLEN PIECE GOODS

Tartrachrome Black B on 100 lbs. woolen piece g ods. Prepare dye bath with

4 lbs. Tartrachrome Black B.
(American Dyewood Company, 80 Maiden Lane, N. Y.)
10 lbs. Acetic Acid.
20 lbs. Glauber's Salt.

Bring to boil in 1/2 hour. Boil 1/2 hour and add

3 lbs. Oil Vitriol.

Boil 1/2 hour and add

2 lbs. Bichromate of Potash.

Boil a further 1/2 hour and rinse.

Tartrachrome Black is a product noted for its fastness to light and fulling and level dyeing properties.

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Recipe No. 4

RED ON WOOLEN PIECE GOODS

Alizarine Red B on 100 lbs. woolen piece goods. Prepare dye bath with

3 lbs. Alizarine Red B.
(American Dyewood Company, 80 Maiden Lane, N. Y.)
10 lbs. Acetic Acid.
20 lbs. Glauber's Salt.

Bring to boil in 20 to 30 minutes. Boil 1/2 hour and add

3 lbs. Oil of Vitriol.

Boil 1/2 hour and add

1½ lbs. Bichromate of Potash.

Boil a further 1/2 hour and rinse.

Alizarine Red B is recommended for its level dyeing properties and for its fastness to light and fulling.

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Recipe No. 5

RED ON COTTON YARN

Dianil Light Red 12 B W on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Dianil Light Red 12 B W.
(Farbwerke-Hoechst Co., 122 Hudson St., New York.)
2 lbs. Soda Ash.
40 lbs. Glauber's Salt.

Enter at 160° F. and dye at a boil for one hour.

Dianil Light Red 12 B W combines excellent fastness to light, with good fastness to washing for a direct cotton color. They are easily soluble, dye level and are well adapted to machine dyeing.

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Recipe No. 6

BLUE ON WORSTED YARN

Chrome Fast Blue B X on 100 lbs. worsted yarn. Prepare the dye bath with

3½ lbs. Chrome Fast Blue B X.
(Badische Co., 86 Federal St., Boston.)
5 lbs. Acetic Acid.
20 lbs. Glauber's Salt.

Enter at 100° F., boil 1/2 hour, then slowly add

3 lbs. Sulphuric Acid,

and boil 3/4 hour longer.

When bath is sufficiently exhausted add

2% Potassium Bichromate,

and boil 3/4 hour longer.

Chrome Fast Blue B X possesses very good fastness to light, and its fastness in nearly all other respects is good.

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Recipe No. 7

GREEN ON COTTON YARN

Brilliant Green C G on 100 lbs. cotton yarn. First mordant the yarn by working for 15 minutes in a boiling bath containing

2½ lbs. Tannin (or its equivalent in Sumac),

and continue to work in the gradually cooling bath for one hour, then squeeze without washing and work twenty minutes longer in a cold bath made up with

1¼ lbs. Tartar Emetic.

Rinse, and then dye in a bath made up with

1 lb. Brilliant Green C G.
(Farbwerke Hoechst, 122 Hudson St., New York.)

dissolved in

1 lb. Acetic Acid,
3 lbs. Acetic Acid,
2 lbs. Alum.

Enter cold, bring to 160° F. during 1/2 hour, and continue dyeing 1/2 hour at 160° F.

Brilliant Green C G is a new basic green yellower and purer in tone than the older brilliant greens.

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Recipe No. 8

BROWN ON COTTON YARN

Paragene Brown B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Paragene Brown B.
(Geisenheimer & Co., 189 Front St., New York.)
3 lbs. Soda Ash.
20 lbs. Glauber's Salt.

Dye at a boil for one hour, then couple in a cold diazotized paranitraniline bath made up with

1¼ lbs. Paranitraniline,
3 lbs. Hydrochloric Acid, 35° Tw.,
¾ lbs. Sodium Nitrite,

adding just before use

1 lb. Acetic Acid,
½ lb. Soda Ash.

Work in the above bath for 1/2 hour.

Paragene Brown B possesses very good fastness to washing.

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Recipe No. 9

DRAB ON COTTON YARN

Chlorazol Drab R H on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Chlorazol Drab R H.
(Read Holliday & Sons, 11 Gold St., New York.)
10 lbs. Common Salt.

Dye in the usual manner.

Chlorazol Drab R H possesses excellent fastness to light, milling and washing.

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Recipe No. 10

BORDEAUX RED ON COTTON YARN

Paragene Bordeaux B on 100 lbs. cotton yarn. Prepare the dye bath with

2 lbs. Paragene Bordeaux B.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
2 lbs. Soda Ash.
20 lbs. Glauber's Salt.

Enter at 160° F. and dye at a boil for one hour, then couple with diazotized paranitraniline in a cold bath made up with

1¼ lbs. Paranitraniline,
3 lbs. Hydrochloric Acid, 35° Tw.,
¾ lbs. Sodium Nitrite,

adding just before use

1 lb. Acetic Acid,
½ lb. Soda Ash.

Work in the above bath 1/2 hour.

Paragene Bordeaux B possesses very good fastness to washing.

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Recipe No. 11

DRAB ON COTTON YARN

Chlorazol Drab R H on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Chlorazol Drab R H.
(Read Holliday & Sons, 11 Gold St., New York.)
5 lbs. Common Salt.

Prepare the dye bath in the usual manner.

Chlorazol Drab R H possesses excellent fastness to light, milling, stoving and washing.

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YELLOW ON WORSTED YARN

Anthracene Yellow F N on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Anthracene Yellow F N.
(Cassella Color Co., 182 Front St., New York.)
5 lbs. Acetic Acid.
15 lbs. Glauber's Salt.

Enter at 120° F., bring slowly to a boil and dye at a boil for 3/4 hour, then slowly add

2 lbs. Sulphuric Acid,

and continue dyeing at a boil until bath is practically exhausted. Then add

2 lbs. Potassium Bichromate,

and boil 3/4 hour longer.

Anthracene Yellow F N will be found to possess excellent fastness to light and washing.

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Recipe No. 13

YELLOW ON WORSTED YARN

Chrome Yellow C V on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Chrome Yellow C V.
(F. E. Atteaux & Co., 174 Purchase St., Boston.)
10 lbs. Acetic Acid.
20 lbs. Glauber's Salt.
2 lbs. Ammonochrome Mordant.

Enter at 160° F. and dye at a boil for one hour.

Chrome Yellow C V is fast to light and exceptionally fast to fulling. It may be used either as an acid, chromate, mordant or after chrome color. It dyes very level.

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Recipe No. 14

RED ON WORSTED YARN

Brilliant Sulphon Red B on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Brilliant Sulphon Red B.
(F. E. Atteaux & Co., 174 Purchase St., Boston.)
2 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 140° F. and dye at a boil for one hour.

Brilliant Sulphon Red B is of interest from the fact that it will dye acid and yet is fast to light, and will work also by the chromate, chrome bottom, or after chrome methods.

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Recipe No. 15

BLACK BLUE ON WORSTED YARN

Monochrome Black-Blue G on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Monochrome Black-Blue G.,
(Farbenfabriken of Elberfeld Co., 117 Hudson St., New York, N. Y.)

then boil up the dye, turn off the steam and cool the bath by the addition of cold water, then add

2 lbs. Potassium Bichromate,

previously dissolved.

Enter yarn at 100° F., raise slowly to the boil, boil 3/4 of an hour, then add

2 lbs. Formic Acid

in several portions and continue the boiling for one hour longer.

Monochrome Black-Blue G possesses very good fastness to light, alkali and washing.

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Recipe No. 16

BROWN ON WORSTED YARN

Guinea Brown R on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Guinea Brown R.
(Berlin Aniline Works, 213 Water St., New York.)
15 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter yarn at 160° F. and dye at a boil for one hour.

Guinea Brown R possesses good fastness in nearly every respect.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

REWARD: As this Department is intended to be a complete record from month to month, we will pay a reward of $2.00 to the person who shall first notify us of any new textile machine, textile device or process, which has been put upon the American market within the two months preceding this issue, and which has not been reported or advertised in the TEXTILE WORLD RECORD. This does not mean an invention which has merely been patented, but something actually ready for sale. A brief description of it and the name of the concern making it should accompany the claim.

Spray Heads. E. W. S. Jasper, 120 Liberty St., New York, has taken the agency for Lechlers Torpedo Sprayer for the atomization of water and other thin fluids. In the textile trade this is adapted for the conditioning of yarn in yarn cellars, moistening cotton goods, cloth and other fabrics, for the absorption of dust, for air damping in work sheds, in which case the sprays are placed in a separate room or air shaft from which the moistened air is driven by ventilators into the workrooms. The sprayer works under varying pressures ranging from 14 pounds to the square inch up to 70 pounds.

Chinchilla Machine. The James Hunter Machine Co., North Adams, Mass. An improved chinchilla machine which is described in this issue.

Dyeing Machine. The Maschinenfabrik Wilhelm Schiffers, Aachen, Germany. A dyeing machine for raw stock in which the liquor is circulated by a force pump. The material is dyed, extracted, oxidized, rinsed and again extracted without removal from the machine.

Mercerizing Machine. S. Spencer & Sons, Manchester, Eng. An improved machine for mercerizing cotton yarn in the hank. A large production and improved luster are among the claims made for this machine.

Warp Beam. J. & T. T. Smith, Bury, Eng. A warp beam made with an iron rod running through the center of the beam to prevent breakage. Tests show that this beam will stand a central load of 5,790 pounds as compared with 3,510 pounds in the case of the ordinary beam.

French Worsted Spinning. Joseph Litty, Gebweiler, Germany. A device for obtaining a uniform pressure of the leather aprons on the sliver during the drawing process.

Mule Spinning. Oscar Lepperhoff, Drespe, near Cologne, Germany. An attachment to mules by which the fallers are connected with an air pump, the object being to obtain a hard wound cop.

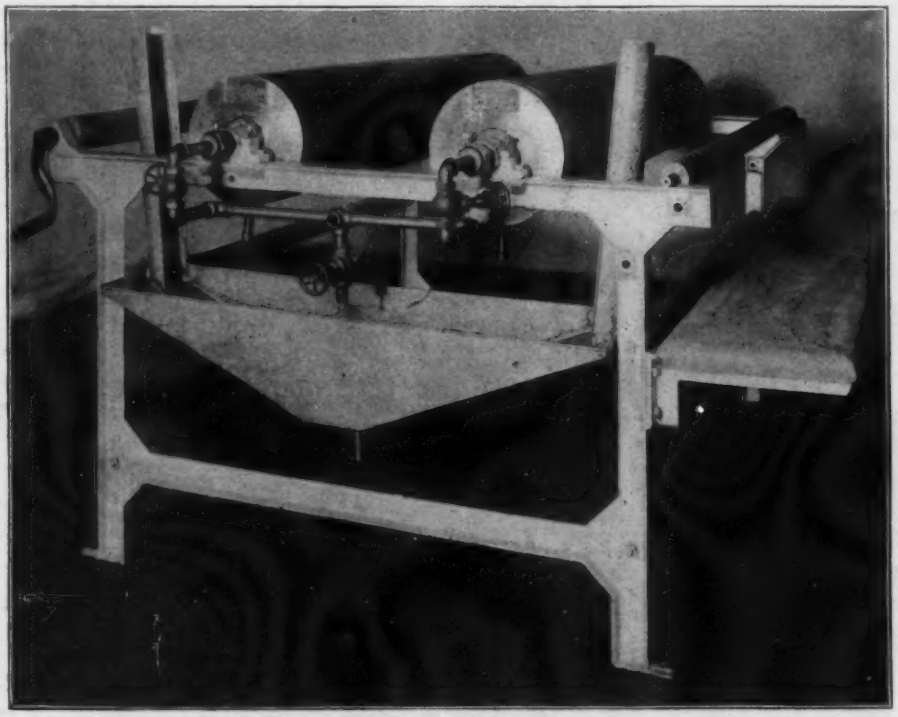
Indigo Dyeing Machine. B. Cohen, Grevenbroich, Germany. A machine for dyeing indigo blue, the goods being kept submerged to prevent oxidation.

Yarn Winder. Joseph Stubbs, Manchester, England. A quick traverse winder for winding yarn from cops to cheeses.

Card Sliver Evener. Dobson & Barlow, Bolton, England. An attachment for keeping card sliver uniform in size. After leaving the card the sliver passes through a funnel mounted on a swinging lever, and then through two pairs of draft rolls, the second pair being cone shaped. A variation in the size of the sliver causes the lever to swing and the sliver to move toward the large or small end of the cone draft rollers, thus increasing or decreasing the draft and keeping the size of the sliver uniform.

CLOTH SHRINKING AND SPONGING MACHINE

The illustration shows the Moritz double cylinder cloth sprinkling machine which is the invention of a man who has had twenty years' experience as a practical cloth sponger and knows the requirements of the clothing manufacturers. This machine has been introduced with marked success into some of the large clothing manufacturing establishments, woolen mills and sponging houses. It is operated by hand power because the inventor found by experience that the cloth is not stretched in winding by hand power on the cylinders as it may be on machines operated by power. With a hand machine the operator has absolute control of the cloth and can give it a light or heavy shrinking as it may require. The machine can be stopped instantly if desired.



THE MORITZ DOUBLE CYLINDER CLOTH SHRINKING MACHINE

There are some important new features about this machine which are not found in others. Cloth of the lightest texture, such as panamas, voiles or loosely woven serges, as well as fabrics of heavy weight and close weave, such as heavy weight worsteds, cassimeres, chinchillas and overcoatings can be handled with equally satisfactory results. An ordinary operator with a boy to help him can handle from twelve to fifteen 50-yard pieces per hour. Both ends of the fabric get an even shrinking as the cloth is first shrunk on one cylinder, then reversed on to the other cylinder, then wound on the wood roller, and if a fine luster and finish is desired it is left to cool or settle on the wooden roller for a few hours.

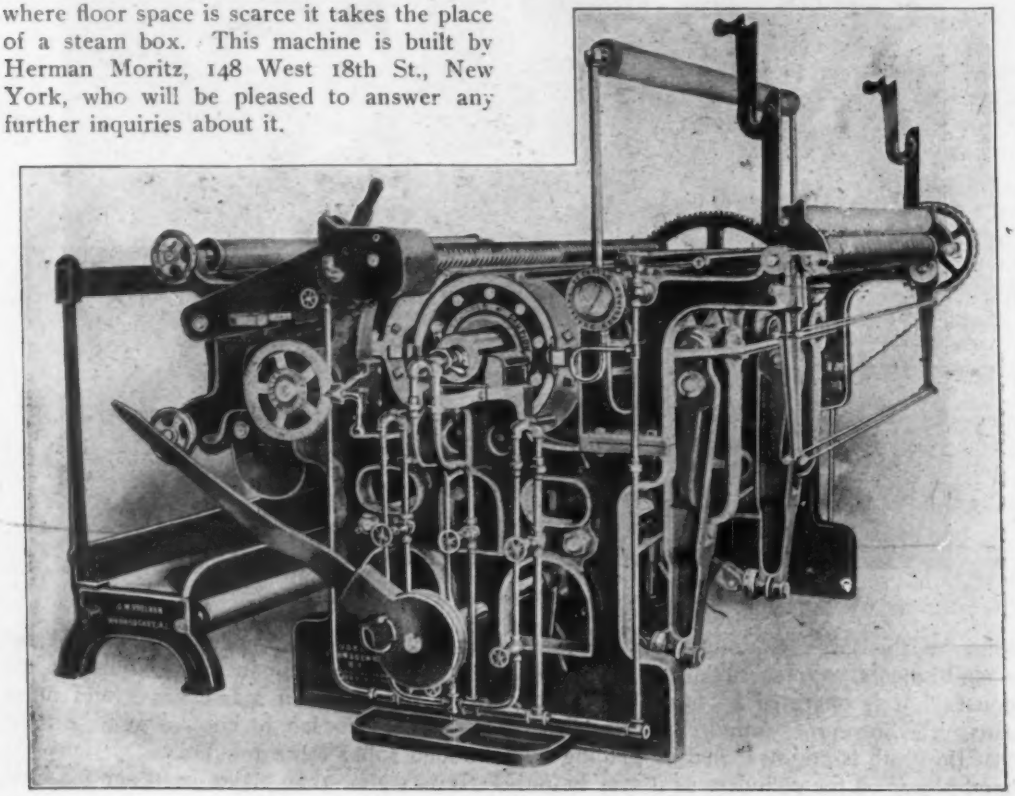
It is stated that plaids or other patterns which have been stretched out of shape can be straightened out on this machine very satisfactorily. The mechanical arrangement on the inside of the cylinder is such that the water is separated from the steam before it enters the body of the cylinder so that there is no wetting or staining of the cloth. The copper cylinders are covered with ten yards

of burlap and ten yards of unbleached muslin over the burlap. This covering lasts from three to five months.

In operation the cloth is first wound around the first cylinder, head end on, face down, and after it is steamed through, as the fabric may require, it is then wound around the second cylinder and when it has the required amount of steam it then passes onto the wood roller when it is ready to cut up. If a high luster is desired it is left on the roller for a few hours. Cloth may also be steamed over the top of the cylinder in the same way as an open steam box and rolled onto wooden rollers. In some places where floor space is scarce it takes the place of a steam box. This machine is built by Herman Moritz, 148 West 18th St., New York, who will be pleased to answer any further inquiries about it.

AN IMPROVED ROTARY PRESS

An improved rotary press has been developed by George W. Voelker & Co., Woonsocket, R. I., for finishing serges or other fabrics that require a dull finish or a sponged effect on their face. In the past when the clothing trade called for a very high luster or glazed effect on the cloth, it was produced on the rotary cloth press by passing between two metal surfaces. These are heated by steam, one metal surface traveling with the face of the cloth and pressing, the other side of the cloth sliding over the other surface and causing the cloth to be ironed so that both sides have more or less press luster from the metal contact. The luster varies with the amount of compression applied to the cloth. It has been a practice to remove



THE VOELKER IMPROVED ROTARY CLOTH PRESS

The United States exported to Japan during the year 1911, 98,236,800 pounds of cotton valued at $14,570,961 as compared with 59,293,733 pounds valued at $8,562,178 pounds in 1910.

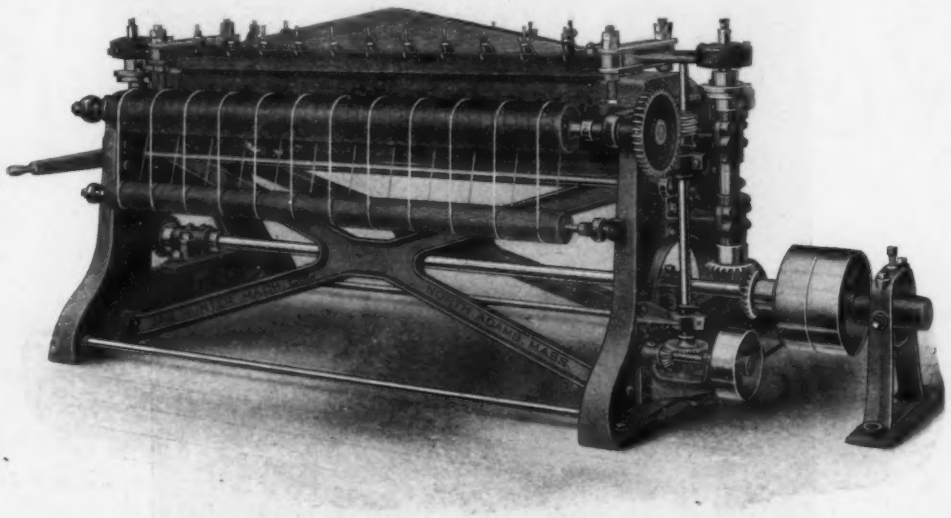
it when desired by running the cloth over a steam brush and steaming its face.

The new features introduced in the Voelker press are designed to produce the desired finish on serge and other fabrics without steaming after the pressing. This is accomplished by the use of non-metallic surface on the cylinder. This surface is very smooth and keeps moderately cool while pressing. It leaves the cloth with a sponged effect on its face and with no metallic luster. Another advantage claimed is that there being no extreme heat in contact with the surface the threads or twill are left round and full in the natural state. All the finish is produced from the friction side of the ironing surface, therefore, the tendency is not to stretch the fabric in length.

The back is pressed smooth and there is no necessity of steaming the face after pressing. This leaves the cloth in condition for dewing, if desired, without danger of spotting or showing water marks. This feature is of particular interest for the dewing machine is being very generally used at the present time as its value is becoming realized. The finish obtained with the use of this improvement is claimed to be different and to meet the demands of the market at the present time. The builders invite manufacturers to see the press in operation and judge of its merits for themselves.

A CHINCHILLA NAPPING OR RIPPLING MACHINE

Woolen manufacturers will be interested in the announcement that the James Hunter Machine Co., North Adams, Mass., are building an improved chinchilla machine, which is shown in the accompanying illustration. The machine is built to give great solidity and as a result there is very little vibration when in operation. The heavy bed is made of cast iron 10 inches wide and 63 inches long, planed on top and ends and bolted and doweled to the frame. The vibrating table is made of strips of two-inch pine, doweled and glued, giving a very light but strong and stiff construction. The table is operated by two hardened steel spindles working in bronze bearings, power being transmitted through short shafts driven by bevel gears. Provision is made for easy adjustment of the machine to suit any finish desired and for raising the table to introduce and remove the cloth. The speed of the cloth varies from 25 to 50 yards per hour, according to the finish required. This machine is practically the Baush chinchilla ma-



THE HUNTER CHINCHILLA NAPPING OR RIPPLING MACHINE

chine, formerly made at Holyoke, Mass., the Hunter Co. having made some additions and improvements, so that woolen manufacturers can be assured the machine is one that will stand the test of mill work.

THE RYALLS SPINDLE MOTION FOR MULES

The illustrations show an attachment for reversing the spindle motion on woolen or cotton mules, which is being put on the market by the Ryalls Machine Co., Charlottesville, Va. When right and left twist yarns are spun this reversed spindle motion is claimed to save from thirty minutes to two hours and the labor otherwise spent in changing the bands by hand. Other claims made for the attachment are that whether right or left twists are spun or not, to those using mules it ensures more uniform and compact cops with ten per cent. more yarn on each bobbin, thus saving time in doffing. It is also claimed that there are far fewer soft bobbins, that the life of spindle bands is prolonged and that the spindle collars and spindle steps are saved from the loosening and wear of the old method of band changing.

Fig. 1 shows the Ryalls reverse spindle motion installed on a mule. Fig. 2 shows the assembled working parts. The main cylinder shaft is cut through at the center of each of the bearings, D and C, and this

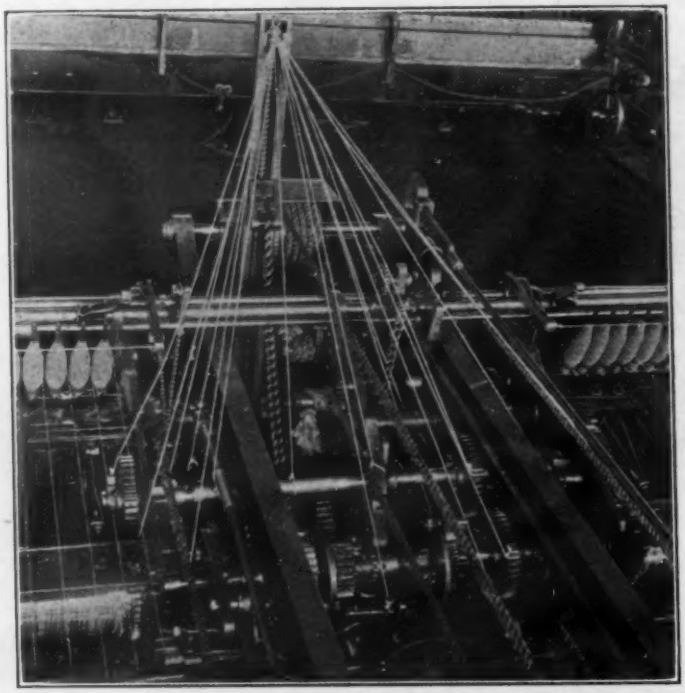


FIG. 1. THE RYALLS REVERSE SPINDLE MOTION INSTALLED ON A MULE

leaves the center shaft, A, which is driven by the cylinder band, free to always revolve in one direction, while the cylinders revolve in either direction at will. When P and P^1 mesh the cylinder gears, S and S^1, through T and T^1 have the same direction of rotation as the center shaft, A. but when P drives P^1 through the intermediate, O, then the gears, S and S^1, revolve in the opposite direction, giving the reverse twist; and when P and P^1 mesh direct the intermediate, O, is removed from its stud The gear, P^1, sliding on a key in the shaft permits of its engaging

either with gear, P, direct or with the intermediate, O, as desired. This apparatus shows practically no lost motion, wear or vibration after five months' use on a heavy 240 spindle mule.

The Charlottesville Woolen Mills, where this attachment has been in use for over two years, speaks very highly of it and several other mills who have put in the machine on trial have equipped all their mules.

NEW CHAIN DRIVE FOR ROVING FRAMES

The Woonsocket Machine & Press Company, Woonsocket, R. I., have perfected and are now putting on the market a new chain drive invented by the late R. B. Daley, to take the place of all beveled gears for driving the bobbin shaft on their roving frames, which is considered one of the greatest improvements of the roving frame that has been made for a long time.

By means of this drive they have been enabled to increase the speed of the frames so that the production has been also increased from ten to fifteen per cent. Owing to the solid construction of all parts of the Woonsocket frame this increase of speed causes no extra strain on the machine, which it is not easily capable of sustaining.

This chain drive has been thoroughly tried out in several cotton mills for the last two years and has demonstrated its thorough practicability and that it can substantiate the claims made for it by the builders. Cotton manufacturers who have seen this improvement have been highly pleased with it.

THE OTIS INCLINED ELEVATORS

Inclined elevators, made by the Otis Elevator Company, 11th Ave. and 26th St., New York, are the result of a demand for a mechanically simple conveyor to provide rapid and continuous movement of freight and merchandise from level to level in factories and mills.

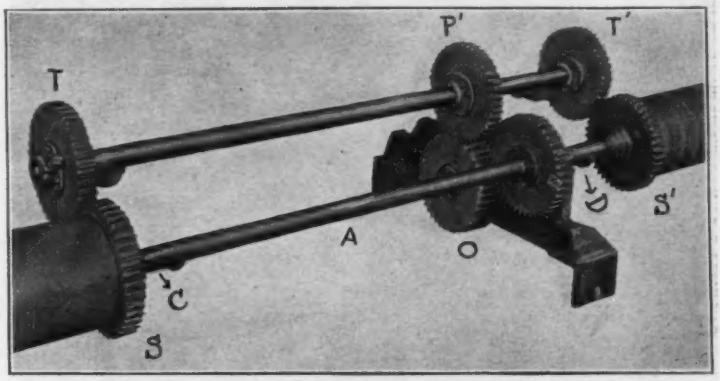


FIG. 2. THE ASSEMBLED WORKING PARTS OF THE RYALLS REVERSE MOTION

As will be seen by the accompanying illustrations, the construction of the Otis inclined elevator is very simple. All the machinery is easy of access, and when the inclined elevator is at rest, it may serve as a passage for employees and a means of escape in case of fire; being in fact, a combination stairway and elevator. It consists, briefly, of an endless chain with projecting teeth and lugs, which travels in a steel channel about sprockets at each end which are driven through suitable spur gear drive by a low horsepower motor.

Another type consists of a moving platform constructed in a similar manner, but with lugs for engaging the trucks at the sides of the treads. When in operation, the truckman brings his loaded truck to the elevator; the flange or lug of the elevator engages a steel projection bolted to the bottom of the truck, and the man, truck and load are transported from level to level quickly, safely and without physical effort. If bales,

THE OTIS DUPLEX INCLINED ELEVATOR

THE OTIS SINGLE FILE INCLINED ELEVATOR

boxes or packages are to be conveyed without the use of the truck, it is only necessary to place them on the incline, and in a few seconds they are at the top, where they slide off on a cone landing plate.

The capacity of the inclined elevator is enormous, because it is a continuous motion carrier, and because the starts and stops to load and unload, with accompanying loss of power, and the waits for the vertical elevator while it returns empty, are eliminated. The number of trucks that can be carried varies, of course, according to the speed at which it is driven and the type of truck used.

Fig. 1 shows an Otis Duplex inclined elevator carrying freight up and down simultaneously. The single file inclined elevator, Fig. 2, consists of but one machine, similar in construction to the Duplex type. With either of the elevators shown in Figs. 1 and 2, the attendant can accompany the freight or not as desired. The single chain type, shown in Fig. 3, is adapted for the same conditions of freight service, but does not allow the attendant to be carried with the load. He can, however, walk up the incline. The load rests on the truck wheels, the chain simply engaging the iron flange and pulling the truck up the incline. The Otis Elevator Company also build other types of inclined elevators and adapts them to special requirements.

THE OTIS SINGLE CHAIN INCLINED ELEVATOR

A NEW SKEIN STRETCHING MACHINE

The illustration shows a skein yarn stretching machine perfected and now being put on the market by Charles H. Knapp, corner Wait and Rye Sts., Paterson, N. J. It is of a very substantial construction, six feet in diameter, four feet high and being on rolls can be moved in and out of the dry room.

There are thirty arms in each spider. The lower one is moved up and down by a screw in the center. This screw is operated by a worm and worm wheel, the worm shaft extending beyond the arms of the top spider. The spiders are kept in alignment by three guide rods fastened to the top spider and a flanged hub that turns in the base. A foot lever raises the two spiders, screw, flanged

hub and guide rods out of a clutch on the base so that the whole top that carries these parts can be turned around. This makes it very convenient for the workman as the machine can be loaded and unloaded without his having to walk around it.

The poles, sixty in number, that are furnished with the machine, are two feet long, two inches in diameter and covered with fiber. They fit the grooves in the arms of the spider. This machine is being used with satisfaction in several establishments and it seems to amply meet the purpose for which it is designed.

A NEW SKEIN YARN STRETCHING MACHINE

The United Kingdom's importation of raw and spun silk during 1911 aggregated $10,505,000, and of silk and silk mixtured manufactured goods $62,075,000. The total exports of raw and spun silks aggregated $3,093,000 and of manufactures of silk and silk mixtures $8,990,000, of which the United States took $325,000.

THE KRON AUTOMATIC SCALE

This scale, built by the American Kron Scale Co., 39 Cortlandt St., New York, is an automatic dial scale without springs and has been designed to meet the demands for a quick weighing and accurate machine. Every one is familiar with the time lost in adjusting weights on the ordinary beam scale in order to obtain a balance of the load. This time is all saved by the use of the Kron scale, the finger of which indicates instantly on the dial the weight of the load. The time consumed in weighing bags or bales of wool, cotton or other material is, therefore, reduced to the actual time required for handling the material. This scale is especially adapted for textile work and its advantages are at once apparent in the weighing of raw material and supplies when received at the mill; also in weighing out batches of raw stock, yarn and other materials in process.

The Kron dial mechanism is of metal without springs or pivots and thoroughly pro-

tected from rust. The platform is either made of steel or well seasoned wood as desired. This scale has been subjected to prolonged tests and its accuracy and durability as well as the saving of time have been demonstrated beyond question. The principle on which the Kron scale is based is simple and all the parts are designed to give strength and durability. The scale is made in different forms to suit various requirements. The illustration shows the standard warehouse scale with tare beam and raising

THE KRON AUTOMATIC SCALE, PLATFORM TYPE

lever. The platform raising lever is an arrangement to lift the platform from its bearings, thus preventing any wearing of the pivots when freight is moved over the platform for other purposes than weighing. Several types of portable scales are adapted for various requirements in factory use. They are built in different sizes down to the smaller counter scales which would be useful in several departments of the mill.

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Linen is one of the principal exports from Belgium to the United States. During 1911 it amounted to $1,805,683.

TROUBLE WITH A COTTON SPEEDER

BY PENCOOK

A short time ago one of my section hands came to me stating he was having trouble with his cotton speeder. I looked over the machine with him and found that there was too much play between the swinging gear and the gear that drives the bobbin shaft. I also noticed that the swinging gear was worn inside the hub, and of course this made more play between the swinging gear and the gear that drives the bobbin shaft. I took out the swinging gear and had a new one fitted up to the stud that runs through the hub. I then loosened the gear that drives the bobbin shaft. I set the gears even with the swinging gear and screwed them up tight. Then I went to the front of the speeder and loosened the gears at the end of the carriage and set them against the carriage box and tightened them up there. Then I set a collar that was on the bobbin shaft close to one of the bolsters to keep the bobbin shaft from working in or out. I told the speeder tender to doff the speeder. I oiled all the steps and bobbin gears myself to make sure it was done right and put fresh tallow in all the bolster hooks and then got the speeder ready to start up. I gave all the shafts and gears a good oiling and started the speeder up slow and watched to see if the bobbin gears were jumping. There were just seven gears jumping out of one hundred and ninety, so I stopped the speeder and reset the gears that were jumping and started the speeder again and they worked all right. I came to the conclusion that the speeder was never properly oiled and that this caused the gears to wear. When the frame was in motion it shook it so that all the bobbin gears began to jump.

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Imports of wool into the United Kingdom have lately reached a total of 800,000,000 pounds a year, to which a home production of roughly 140,000,000 is to be added.

Cotton was well known and in common use in India long before the Christian era, for in an old book written about 800 B. C. the plant is referred to frequently, and in such a way as to show that it was quite familiar.

Personals

Frank H. Shumway, general superintendent of the Acushnet Mill Corporation, New Bedford, Mass., has tendered his resignation. He has been in the employ of this company for the past twelve years.

Charles H. Bigelow has accepted the position of chief engineer and master mechanic at the Millville Mfg. Co., Millville, N. J. He was formerly employed at the Yale & Towne Mfg. Co., Stamford, Conn.

Peter Ross has been appointed overseer of weaving at the Hathaway Mill, New Bedford, Mass.

John Robinson has been appointed assistant superintendent of the Hathaway Mill and the Acushnet Mill, New Bedford, Mass.

Wright Bolton, who has been superintendent of the Hathaway Mill, New Bedford, Mass., will become general superintendent of the Hathaway Mill and the Acushnet Mill at New Bedford.

William Hamilton, overseer of spinning at the Lancaster Mill, Clinton, Mass., for the past twenty-two years, has severed his connection with that company.

Joseph F. King has accepted the position of overseer of dyeing at the Western Felt Works, Chicago, Ill.

Nelson S. Brouillette has accepted the position of overseer of spinning and twisting at the Woodberry Mill, Consolidated Cotton Duck Co., Baltimore, Md. He comes from the Chester Spinning Mills, Chester, Pa.

Narcisse Tapin, overseer of ring spinning, twisting, reeling and warping at the Dominion Textile Co., Montreal, Canada, has severed his connection with that company.

W. H. Gibson, Jr., overseer of weaving at the Alice Mills, Easley, S. C., has resigned. He was presented with a signet ring by his employes as a token of their esteem.

J. B. Fennell, overseer of weaving at the Olympic Mills, Columbia, S. C., has resigned to accept a similar position at Whitmire, S. C.

Albert Mehaffey, overseer of spinning at the Hermitage Mill, Camden, S. C., has resigned to accept a similar position with the Hartsville Mills, Hartsville, S. C.,

M. C. Smith, formerly overseer of the cloth room at the Poe Mills, Greenville, S. C., has accepted a position as designer at the Dunean Mills, of the same place.

Abe Oden has accepted the position of overseer of carding at the Manchester Mills, Macon, Ga.

Thomas H. Quinn has accepted the position of overseer of carding at the Cherryville Mfg. Co., Cherryville, N. C. He was formerly employed at the Howell Mfg. Co., same place.

J. M. Carroll has accepted the position of overseer of weaving at the Orangeburg Mfg. Co., Orangeburg, S. C. He comes from Abbeville, S. C.

T. C. Whisnant, overseer of carding at the York Mills, Yorkville, S. C., has resigned to accept a similar position with the Cleghorn Mills, Rutherfordton, N. C.

H. B. Sharp, overseer of carding at the Aragon Mills, Aragon, Ga., has resigned to accept the position of assistant superintendent at the Floyd Mills, Rome, Ga

H. C. Mason, for the past six years overseer of carding at the Delgado Mills, Wilmington, N. C., has been promoted to assistant superintendent and will also continue to have charge of the carding.

D. E. West, formerly of Fountain Inn, S. C., has succeeded B. L. Ledwell as superintendent of the Belmont Mill, Shelby, N. C.

Frank H. Carpenter has been appointed general manufacturing agent of the American Woolen Company, a new position recently created by this company.

Dyson Crowther, who has been sales agent for the Limerick Mill, Limerick, Me., has accepted the position of superintendent and designer at the Somerset Worsted Mill, East Madison, Me., to succeed Morris Gledhill.

Dennis Ryan has accepted the position of second hand of spinning at the West Boylston Mfg. Company, Easthampton, Mass. He comes from Waltham, Mass.

Henry D. Martin, for the past six years superintendent of the cloth department at the Lancaster Mill, Clinton, Mass., has severed his connection with that company.

George Hinckley, formerly treasurer of the Bristol Mill, New Bedford, Mass., has been appointed New England sales manager of the Champlain Silk Mills of Brooklyn and Whitehall, N. Y. He will have an office in Providence, R. I.

Harry Houghton, overseer of the carding department at the Fisher Mfg. Co., Fisherville, Mass., has resigned to accept a similar position with the Grosvenordale Co., No. Grosvenordale, Conn. He was presented with a diamond ring by the help in the carding room, the presentation being made by William Gillespie.

James Craig has been appointed overseer of carding at the Fisher Mfg. Co., Fisherville, Mass. He was formerly employed at the Nourse Mill, Manville Co., Woonsocket, R. I.

Henry F. Nolan, overseer of the wet spinning department for Smith & Dove, Andover, Mass., has severed his connection with that company. He had been in the employ of this concern for seventeen years.

J. H. Tierney has accepted the position of overseer of finishing at the Fabyan Woolen Co. No. 3, New Boston, Conn. He was formerly employed at the Linn Woolen Co., Hartland, Me.

Howard Davis has been elected vice-president of the Royal River Mfg. Co., Yarmouth, Me.

J. P. Carter has been appointed superintendent of the Clinton Cotton Mill, Clinton, S. C. He comes from Fountain Inn, S. C.

Miss J. Arminson McIntyre, for over ten years manager of the publicity department of the C. W. Hunt Company, West New Brighton, N. Y., is resigning that position early in the new year. While no definite plans have been made for the future, it is understood that Miss MacIntyre will travel for a time.

Thomas J. Jennings, overseer of finishing at the Belle Vue Mill, Clinton, Mass., has severed his connection with that company.

Robert S. Dodds has accepted the position of overseer of weaving at the Lebanon Mill, American Woolen Co., Lebanon, N. H. He was formerly employed at the Faulkner Mfg. Co., North Billerica, Mass.

P. H. Duffy, overseer of carding at the Glen Woolen Mills, Norwich, Conn., has severed his connection with that company.

C. S. Fling, overseer of weaving at the Tremont & Suffolk Mill, Lowell, Mass., has severed his connection with that company.

E. S. Creamer has been appointed superintendent of the Springdale Fibre Co., Canton, Mass.

Ralph E. Thompson has been appointed resident agent of the Lancaster Mill, Clinton, Mass. Mr. Thompson comes from the Parkhill Mfg. Co., Fitchburg, Mass.

Carl Peterson has accepted the position of overseer of dyeing at the Bay State Mill, American Woolen Co., Lowell, Mass. He comes from the Cheshire Mills, Harrisville, N. H.

A. E. Thomas, superintendent of the Oxford Linen Mill, North Brookfield, Mass., has resigned to accept a similar position in a large mill in Canada.

Martin Harding, overseer of carding at the Miller River Mfg. Company, Athol, Mass., has severed his connection with that company.

George N. Smith, overseer of carding at the Patrick Duluth Woolen Mill, Duluth, Minn., has severed his connection with that company.

Albert Huber has accepted the position of overseer of spinning for J. Broadbent & Son, Unionville, Conn. He comes from Goffs Falls, N. H.

J. J. McFarland has accepted the position of overseer of carding at the Patrick Duluth Woolen Mill, Duluth, Minn. He comes from the North Star Woolen Co., Minneapolis, Minn.

James Magner, overseer of dyeing at the Ayer Mill, American Woolen Co., Lawrence, Mass., has severed his connection with that company.

Wilfred Beech, overseer of carding at the I. E. Palmer Co., Middletown, Conn., has severed his connection with that company.

James Callison has been appointed overseer of dyeing at the Ayer Mill, American Woolen Co., Lawrence, Mass.

John Moriarty, designer at the Burlington Mill, Winooski, Vt., has resigned to accept the position of assistant superintendent at the Raritan Woolen Mill, Raritan, N. J.

Walter Nieber has accepted the position as superintendent of the Darling Woolen Mills Co., Holden, Mass. He was formerly employed with the same company at their Holliston Mill.

A. L. Tustin, overseer of finishing and bleaching at the Stark Mill, Manchester, N. H., has resigned and is succeeded by Samuel Diggle.

John S. Robinson, overseer of carding at the North Adams Mfg. Co., North Adams, Mass., has severed his connection with that company to accept a similar position with the Mianus Mfg. Co., Coscob, Conn.

J. W. Parker, overseer of dyeing at the Henry F. Scatchard Mfg. Co., Norristown, Pa., has severed his connection with that company.

E. T. Zimmerman has accepted the position of overseer of spinning at the W. S. Gray Cotton Mills, Woodruff, S. C. He comes from Spartanburg, S. C.

James H. Gannon, overseer of finishing at the Faulkner Mfg. Co., North Billerica, Mass., has tendered his resignation to accept a similar position with H. T. Murdock & Co., Proctorsville, Vt.

James Moore has accepted the position of overseer of weaving at the Darling Mfg. Co., Holden, Mass. He comes from Pascoag, R. I.

Arthur D. Mansell, overseer of finishing at the H. T. Murdock & Co., Proctorsville, Vt., has tendered his resignation to accept a similar position with the Mayo Woolen Co., Millbury, Mass.

Edward Walker, overseer of carding at the Renfrew Mfg. Co., Adams, Mass., has resigned. He was presented with a beautiful Meerschaum pipe by the help in his department as a token of the esteem in which he was held.

A. D. Bishop, overseer of ring spinning, spooling and warping at the Luther Mfg. Co., Fall River, Mass., has severed his connection with that company. He was formerly employed at the Berkshire Cotton Mfg. Co., Adams, Mass.

Frank Talcott, overseer of finishing at the Ray Mill, American Woolen Co., Franklin, Mass., has severed his connection with that company.

M. C. Brownell, overseer of carding at the Ray Mill, American Woolen Co., Franklin, Mass., has severed his connection with that company to accept a similar position with the Worcester Woolen Mill Co., Worcester, Mass.

William H. Carter, overseer of carding and John De Witt, second hand in the card room, have

tendered their resignations. They have been in the employ of this company for a number of years.

Thomas Bryon has accepted the position of overseer of carding at the Ray Mill, American Woolen Co., Franklin, Mass. He was formerly employed at Saxonville, Mass.

J. E. Edgerton has been elected secretary, treasurer and general manager of the Lebanon Woolen Mill, Lebanon, Tenn.

William F. Hines, overseer of dyeing at the Richardson Foster Co., Central Falls, R. I., has severed his connection with that company.

William E. Chamberlin has accepted the position of overseer of finishing at the Belle Vue Mills, Clinton, Mass. He was formerly employed at the Bay State Worsted Co., Worcester, Mass.

John Howard has accepted the position of overseer of weaving at the Faulkner Mfg. Co., North Billerica, Mass. He was formerly employed at the Lebanon Mill, American Woolen Co., Lebanon, N. H.

Clinton S. Andem, agent of the Grosvenordale Co., No. Grosvenordale, Conn., has severed his connection with that company after being in their employ for 37 years. He is succeeded by J. O'Riordan, who comes from New Jersey.

T. J. Sheehan, overseer of carding at the Worcester Woolen Mill Co., Worcester, Mass., has resigned to accept a similar position with the Knight Woolen Mills, Provo, Utah.

M. J. Shaughnessey has accepted the position of superintendent of the Cleveland Woolen Mills, Dresden, O. He was formerly employed at the Malone Woolen Mill, Malone, N. Y., and succeeds the late Henry Balbian.

Harry L. Munz has accepted the position of superintendent of the branch mill at Scranton, Pa., operated by E. Sutro & Sons Co., Philadelphia, Pa.

Artie T. Rowe has accepted the position of overseer of knitting at the Everwear Hosiery Co., Milwaukee, Wis. He was formerly employed at the Holeproof Hosiery Co., London, Ont., Canada.

Mark Edge, for fourteen years overseer of weaving at the Granite Mill, Fall River, Mass., has been appointed designer for this company. He is succeeded in the weaving department by John T. Martin.

Patrick W. Kiernan has been appointed superintendent of the Lowell Bleachery, St. Louis, Mo. He comes from the Lowell Bleachery, Lowell, Mass.

J. C. Keller has accepted the position of overseer of carding and spinning at the Aurora Mills, Burlington, N. C. He comes from King's Mountain, N. C.

H. C. Puckett has accepted the position of overseer of carding and spinning at the Holland Mfg. Co., Gastonia, N. C. He was formerly employed at the Dorothy Mfg. Co., Dallas, N. C.

C. N. Harper, formerly overseer of weaving at the Gibson Mill, Concord, N. C., has accepted a similar position at the Pomona Mills, Greensboro, N. C.

J. A. Rhodes has accepted the position of overseer of carding at the Coosa Mills, Bon Air, Ala. He was formerly employed at the Central Mills, Sylacauga, Ala.

League Lashley has accepted the position of overseer of carding and spinning at the Glencoe Mills, Burlington, N. C.

L. R. Crouch succeeds A. C. Medlin as overseer of spinning at the Entwistle Mill, Rockingham, N. C. He comes from Hartsville, S. C.

A. C. Medlin has accepted the position of overseer of spinning at the E. A. Smith Mfg. Co., Rhodhill, N. C. He was formerly employed at the Entwistle Mill, Rockingham, N. C.

W. C. Humphries has accepted the position of master mechanic at the Tarboro Cotton Mill, Tarboro, N. C. He comes from Spray, N. C.

B. L. Ledwell, formerly superintendent of the Belmont Mill, Shelby, N. C., has accepted a similar position with the Knoxville Spinning Mill, Knoxville, Tenn.

J. A. Byrd has accepted the position of overseer of spinning at the Caswell Cotton Mills, Kinston, N. C.

J. E. Owens has accepted the position of overseer of carding at the Hutcheson Mfg. Co., Banning, Ga. He comes from Pelzer, S. C.

Sam Stokes has been appointed night superintendent of the Caswell Cotton Mills, Kinston, N. C. He was formerly employed as overseer of carding at the Kinston Cotton Mills, Kinston, N. C.

C. S. Singleterry has accepted the position of overseer of carding at the Shawmut Mills, Shawmut, Ala., having resigned a similar position with the W. A. Handley Mfg. Co., Roanoke, Ala.

J. M. Glass, formerly overseer of carding at the Griffin Mfg. Co., Griffin, Ga., has resigned to accept a position as assistant carder at the West Point Mfg. Co., Langdale, Ala.

Andrew Rayner, for a number of years overseer of the cloth room at the Wampanoag Mill, Fall River, Mass., has resigned.

Fred Raymond has accepted the position of assistant designer at the Hargreaves Mill No. 2, Fall River, Mass.

Fred Brown has been appointed superintendent of the Mansfield Elastic Web Co., Mansfield, O. He was formerly employed at the Nashawannuck Mfg. Co., Easthampton, Mass.

Roland Hartley, overseer of dyeing at the Orrell Mills, Inc., Glendale, R. I., has severed his connection with that company. He is succeeded by J. Hanlin Parker, who was formerly employed at the Henry F. Scatchard Mfg. Co., Norristown, Pa.

George K. Hanna, designer for the Parkhill Manufacturing Co., Fitchburg, Mass., has been appointed superintendent to succeed Ralph E. Thomson. His son, George K. Hanna, Jr., has been promoted to the position of designer.

A. L. Robertshaw has been appointed general manager of the Fernrock Woolen Mill Co., Philadelphia, succeeding J. P. Kirkaldy.

Thomas F. Crofwell, overseer of dyeing at the Namquit Worsted Company, Bristol, R. I., has severed his connection with that company.

Edward Magner has accepted the position of overseer of dyeing at the Lymansville Co., Lymansville, R. I. He was formerly employed at the Ayer Mill, American Woolen Co., Lawrence, Mass., in a similar position.

Charles Attridge, overseer of dyeing at the Lymansville Co., Lymansville, R. I., has severed his connection with that company.

Walter N. Oldham, overseer of finishing at the Mayo Woolen Co., Millbury, Mass., has severed his connections with that company owing to ill health.

John Nobie has accepted the position of overseer of dyeing at the Henry F. Scatchard Mfg. Co., Norristown, Pa.

George Fournier has accepted the position of overseer of weaving at the Manville Co., Woonsocket, R. I. He comes from North Village, Webster, Mass.

William A. Carpenter, formerly overseer of spinning at the B. B. & R. Knight Mill, Riverpoint, R. I., has accepted a similar position with the Skenandoa Cotton Co., Utica, N. Y.

W. F. Campbell, overseer of carding and spinning at the Lakeside Mill, Barlington, N. C., has resigned to accept a position as overseer of spinning in a mill in Alabama.

W. E. Henson, overseer of carding at the Victor Mills, Greer, S. C., has resigned to accept a similar position at the Gluck Mills, Anderson, S. C.

J. W. Kaneer, superintendent of the Vass Cotton Mill, Vass, N. C., has resigned.

J. P. Floyd has accepted the position of night overseer of spinning at the New York Mills, New York Mills, N. Y. He comes from Danville, Va.

J. W. Jenkins, formerly of Scottdale, Ga., has succeeded P. S. McCune as overseer of weaving at the Putnam Mill & Power Co., Eatonton, Ga.

A. L. Bannister has accepted the position of overseer of weaving at the Cowpens Mfg. Co., Cowpens, S. C. He comes from Ware Shoals, S. C.

E. L. Lassiter has been appointed superintendent of the Vass Cotton Mills, Vass, N. C.

E. A. DuBose, Jr. has been appointed manager of the Brazos Valley Cotton Mills, West, Tex.

C. C. Guin, formerly overseer of spinning at Oxford, N. C., has accepted a similar position at the Southside Mill, Winston-Salem, N. C.

M. C. Duncan has accepted the position of overseer of spinning at the New Century Cotton Mill, South Boston, Va.

C. S. Cozart, overseer of spinning at the New Century Cotton Mills, South Boston, Va., has resigned to accept a similar position at the Pomona Mills, Greensboro, N. C.

J. A. Pope has accepted the position of overseer of spinning at the Johnson Mfg. Co., Charlotte, N. C. He was formerly employed at the Highland Park Mfg. Co., same place.

A false report has been circulated that R. J Morningstar is no longer connected with the Jenckes Knitting Machine Company. This is entirely without foundation, as there has been no change whatever in his relations with that concern, for which he is representative for Philadelphia and surrounding territory with show room and office at 1211-17 Filbert St. The rumor probably had its foundation through a recent change in business connections of another gentleman by the same name.

Theophilus Parsons has been elected president of the Amoskeag Mfg. Co., Manchester, N. H., succeeding C. W. Amory. Mr. Parsons was formerly president of the Arkwright Club, treasurer of the Lyman Cotton Mill, Holyoke, Mass., and president of the Dwight Mfg. Co., Chicopee, Mass.

James Morrow, overseer of starching and finishing at the Farwell Bleachery, Lawrence, Mass., has severed his connection with that company.

E. S. Cornell has accepted the position of overseer of knitting at the Great Western Knitting Co., Milwaukee, Wis. He formerly held a similar position at the Houlton Woolen Mill, Houlton, Me.

John B. Bringloe, superintendent of the Ypsilanti Underwear Co., Ypsilanti, Mich., has severed his connection with that company.

Charles F. Sanderson has accepted the position of overseer of knitting at the Athletic Knitting Co., Utica, N. Y.

DEATHS.

William Wicke, president of William Wicke Ribbon Co., 36 East 22nd St., New York City, and also mills at Glendale, N. Y., shot himself at his country estate at Lawrence, L. I. He was 74 years of age. Mr. Wicke was a member of the New York Peace Society, German Press Club and was affiliated with many charitable organizations He is survived by three sons and one daughter.

Captain Amos Bartlett, formerly agent, general manager and vice-president of S. Slater & Sons, Inc., Webster, Mass., died at his home in Webster of heart failure at the age of 76 years. He had been able to be about accompanied by an attendant until November 21. Mr. Bartlett is survived by a widow and three children. He had been connected with the Slater Mill for a number of years and was highly respected.

R. I. Tobey, for a number of years superintendent of the Utica Willowvale Bleaching Co., Chadwick, N. Y., died at his home in Chadwick at the age of 42 years.

Henry Balbian, superintendent of the Cleveland Woolen Mills Co., Dresden, O., was killed in a railroad wreck on the Cincinnati & Muskegon Valley R. R. Mr. Balbian was a well known manufacturer, having been employed for several years at the Beckman Co., Cleveland, O., as superintendent.

James Henry Hinsdale, a prominent citizen of Pittsfield, Mass., died of pneumonia at his home in that city December 5. He was born in Hinsdale, Dec. 17, 1833, being in his seventy-ninth year. Mr. Hinsdale was educated in the Hinsdale schools and the Monson Academy. For a number of years he was associated with his brother in the woolen business at Hinsdale under the firm name of Hinsdale Bros. In 1897 The Hinsdale Woolen Co. was organized with James Henry Hinsdale as treasurer. Mr. Hinsdale leaves two daughters and one son.

Peter Reid, one of the oldest manufacturers in Passaic, N. J., died of pneumonia December 7 at his home in that city. He was born in Govan, Scotland, Oct. 8, 1829, and came to America when he was twenty years of age, starting to work at the Pemberton Mills, Lawrence, Mass. Later he became manager of the Middlesex Dyeing & Bleaching Co. of Somerville, Mass., and in 1869 moved to Passaic where he organized the Reid & Barry Co., dyers and bleachers of cotton goods. In 1888 this plant was taken over by the U. S. Finishing Co. He gave the Jane Watson Reid Memorial Library to the city of Passaic. Mr. Reid was also a large stockholder and director in the Gera Mill, Passaic Textile Co., and the Manhattan Rubber Works His wife died some years ago, she being a native of Somerville, Mass.

Benjamin F. Tillinghast, founder of the Tillinghast Machine & Supply Co., Providence, R. I., died December 9 at his home in that city. Mr. Tillinghast was born August 1, 1846, and came to Providence where he became superintendent of the Allen Print Works, remaining there for three years. He established the Tillinghast Machine & Supply Co., makers of sewing machines for factories, and was elected president of this company in 1911.

Harry Hardwick, president of the Hardwick & Magee Co., manufacturers of Brussel and Wilton carpets, Philadelphia, Pa., died at his home in that city after an illness of six months. He had been connected with the above firm since 1892. Mr. Hardwick was 62 years of age and is survived by his wife.

Luther L. Dean, a prominent knit goods manufacturer of Amsterdam, N. Y., and connected with the Park Knitting Mill, died at the St. Peter hospital in Albany, N. Y., of pneumonia following a surgical operation. He was one of the founders and a director of the Amsterdam City Bank, also a director of the Amsterdam Board of Trade and Library Association. Mr. Dean was 70 years of age and is survived by a wife and one daughter.

Thomas E. Moore, treasurer and general manager of the Tucapau Mills, Tucapau, S. C., president and treasurer of the Gaffney Mfg. Co., Gaffney, S. C., and president and treasurer of the Loray Mill, Gastonia, N. C., died at his home in Wellford, S. C., at the age of 50 years.

Fred L. Leighton, for a number of years paymaster at the Wood Worsted Mill, American Woolen Co., Lawrence, Mass., died at his home in that city at the age of 52 years. He was born in Belfast, Me.

William J. Wright, grandson of John S. Wright, founder of the cotton commission house of Bliss, Fabyan Co., died at his home in Boston, Mass., at the age of 66 years. He had been in poor health for some time. Mr. Wright was owner in large cotton mills and big corporations. He is survived by a wife and step-daughter.

John L. Klenk, president and founder of the Windsor Knitting Mills, Brooklyn, N. Y., died at his home in that city of Bright's disease at the age of 42 years. He is survived by a wife and one son.

Daniel Henson, designer at the Manton Mill, American Woolen Co., Manton, R. I., died at the St. Joseph hospital after an illness of two months' duration. Death was due to heart failure. He was born in Millville, Mass., forty-one years ago and his parents are now residents of Millville.

Frank Clement of Newton Center, Mass., a retired woolen goods importer, died of pneumonia December 21 at the age of 67 years. He was senior member of Clement, Soule & Co., but retired eight years ago. His wife died two weeks ago from pneumonia and his sister succumbed to the same disease last week while visiting her brother. Mr. Clement is survived by a son, a daughter and one brother.

Joseph N. Smith, president of the Boston Woven Hose & Rubber Company of Cambridge, Mass., died at his home at the age of 73 years. He was largely interested in other corporations and had been a large owner in shoe factories in Lynn, Mass., some years ago.

Charles T. Foy, a member of the firm of John Leslie & Co., Philadelphia, wool dealers, died at his home December 17 after an extended illness of about ten months. He was a sufferer of Bright's disease and was born Aug. 24, 1856, at Mt. Holly, N. J. Mr. Foy is survived by his widow and five daughters.

Charles Fox Schofield died at his home in Norwich, Conn., at the age of 95 years. He was one of the pioneer woolen manufacturers of Connecticut, having operated a mill at Montville. A wife and two brothers survive him.

Edward Swindlehurst, for the past eleven years overseer of the carding department at the Narragansett Mills, Fall River, Mass., died recently at his home in that city at the age of 63 years. He is survived by his wife.

Mill News

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires, facts and gossip of the trade are referred to the TEXTILE ADVANCE-NEWS, issued weekly by the publishers of the TEXTILE WORLD RECORD, at $15.00 per year. Communications for this department are invited. There is no charge made for printing notices of new mills, enlargements, improvements, etc.

COTTON.

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New Mills.

*Alabama, Sylacauga. Work is proceeding on the construction of the Eva Jane mill being erected by the Avondale Mills of Birmingham, Alabama. They plan to have 40,000 spindles and 1,200 looms on white and colored cloths of coarse yarn construction.

*Canada, Ontario, Welland. The controlling interest in the new Empire Cotton Mills, Ltd., has been acquired by Smart-Woods, Ltd., a new corporation merging the Smart Bag Company, Ltd., of Montreal, and Woods, Ltd., of Ottawa. This will not affect the organization of the Empire Cotton Mills, Ltd., which will be operated as a distinctly separate concern. Details of buildings, now under construction, and of machinery and product have been given in earlier reports. C. T. Grantham is in charge and may be addressed at Welland.

*Illinois, Quincy. The Quincy Cotton Mills have been incorporated with a capital stock of $300,000 to manufacture cotton goods. This is the cotton mill project in which L. E. Barnes has been reported interested.

*North Carolina, Maysville. The Maysville Cotton Mills Company has been incorporated with capital stock of $100,000 to build and operate a cotton mill. The incorporators are John C. Bauman, previously reported interested in this project, A. J. Collins, J. D. Dudley and others.

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Enlargements and Improvements.

Alabama, Athens. An addition, 125 by 152 ft., is being built by the Fulton Cotton Mill Co. and they will put in 80 40-inch and 48 36-inch looms to weave ducks, drills, etc. It is hoped the new department will be ready for business by March 1. The Fulton Cotton Mill Co. is a reorganization of the Athens Cotton Mill Co. and heretofore cotton yarns have been the sole product. J. W. Frost is president; C. E. Frost, secretary and treasurer; R. S. McGill, general manager, and W. F. Dellinger, superintendent.

Alabama, Eufaula. Enlargements to the storehouse room of the Cowikee Mills are under construction.

Alabama, Florence. The Ashcraft Cotton Mills contemplate the erection of a large addition. Brown sheetings are manufactured at present.

Alabama, Uniontown. Work has been started on the erection of a waste house, 40 by 50 ft., for the Canebrake Cotton Mills. A machine shop and a number of operatives' cottages will be built during 1913, and a humidifying system will be installed throughout the plant. This company took over the old Ellawhite Cotton Mills about a year ago.

*Canada, Ontario, Hamilton. Machinery equipment, including 7,168 spindles, for the increase at the Ontario Mill of Canadian Cottons, Ltd., will be delivered in March. Alex. E. Adam is local manager and buyer.

*Canada, Quebec, Montreal. When the work of installing 300 automatic looms with necessary preparatory machinery in the Mt. Royal Spinning Co. is completed, this mill will have 1,800 looms and will be thoroughly equipped throughout. The Mt. Royal plant is leased by Canadian Cottons, Ltd. to the Dominion Textile Co., and Canadian Cotton, Ltd. are making the new installation for the Dominion Textile Co.'s use.

*Georgia, Columbus. The contractors have made good progress on the addition to the Meritas Mills which will be 375 ft. long, 150 ft. wide and 2 stories high. The enlargement will cost about $200,000 and will increase the plant to 25,000 spindles and 500 looms.

Georgia, Macon. Contracts for new machinery equipment for the Manchester Mfg. Co. have been awarded. Cotton yarns are manufactured.

Georgia, Macon. The Bibb Mfg. Co. will build a large addition and has awarded the construction contract to the Gray-Wimmer Construction Co. of St. Louis. The building will be of brick and reinforced concrete, 350 by 75 ft., 2 stories high. Several thousand spindles and the usual preparatory and weaving equipment will be installed.

Georgia, Social Circle. The Social Circle Cotton Mills are adding 140 new looms.

*Massachusetts, Lowell. The carding department in the new 5-story mill recently erected for the Appleton Co. is in operation. In the immediate future looms will be installed and later a spinning department will be equipped.

Massachusetts, New Bedford. The installation of some electric power equipment has been started in the Rotch Mills of the New England Cotton Yarn Co. Some departments are being operated nights.

Massachusetts, New Bedford. Work has been started on the foundation for an addition to the No. 1 spinning mill of the Dartmouth Mfg. Corporation, to be 443 ft. long, of brick construction.

*New Jersey, Newton. The new quarters of the Standard Towel Company give them three times the amount of floor space they occupied in the old place. They will make no increase in machinery equipment at present.

Massachusetts, North Adams. The project that was under consideration a year ago by the Hoosac Cotton Mills for the building of a large mill on Union St., has been taken up again. The latest information is to the effect that when the power plants in the Deerfield Valley are developed, a $900,000 addition will be constructed.

*New York, Cohoes. It has been noted that the Capital Knitting Co. has established a new department for making Turkish towels and wash cloths. The company has ordered 6 looms on which this line of goods will be made for the present. This equipment will be increased as the business develops and increases are warranted.

*New York, Glens Falls. The work on the new addition to the Standard Textile Company's plant, which was begun in October, is progressing rapidly. The building is to be a two-story brick structure, with concrete floors, which when completed, probably about Feb. 15, will be equipped with new machinery for the manufacture of cotton bats and comfortables.

New York, New York Mills. Additional electric power equipment is being installed in the New York Mills, both in the power department and throughout the mills. The General Electric Co. is supplying this apparatus.

North Carolina, Arkwright. A new warehouse is being built for the Arkwright Mills to be used for storing raw cotton and finished cottons.

North Carolina, Charlotte. Old equipment in the Atherton Mills will be replaced with 5,824 new spindles and preparatory machinery. Contracts for the new equipment have been placed.

North Carolina, China Grove. The Patterson Mfg. Co. is replacing 158 old looms with 170 new automatic looms. Brown sheetings are woven.

*North Carolina, Franklinton. New machinery equipment is being installed in the Sterling Cotton Mills. It was noted recently that a 2-story mill, 280 by 104 ft., would be built and that contracts had been placed for about 10,000 spinning and 3,200 twisting spindles. A further increase of 10,000 spindles will be made during 1913, which will give them a total of 26,000 spindles, making single and ply yarns.

North Carolina, Gastonia. The addition to the warping department of the Flint Manufacturing Company has been completed. It was reported in September that this addition was under construction, and that increases would be made in the warping department and in combing, drawing, and spinning.

*North Carolina, Hillsboro. Repairs are being made in the dyeing department of the Belle Vue Mfg. Co., which was recently visited by fire and damaged to the extent of about $8,000. It is expected the repairs will be finished in thirty days. While this work is going on the dyeing will be done at the Eno Cotton Mills.

North Carolina, Kannapolis. The new mill building of the Cannon Mfg. Co. has been completed and the wiring for electric lights is now under way. Machinery has begun to arrive. The bleachery is nearly completed.

North Carolina, Lumberton. By next April, the departments of the Lumberton Cotton Mills which are not now operated by electricity, will be changed over to electric drive.

*North Carolina, Monroe. The Monroe Cotton Mills contemplate the installation of 60 automatic looms within the next 90 days. It was reported in September that an addition would be built and the equipment increased. Sheetings are manufactured.

*North Carolina, Mt. Holly. Improvements in the equipment of the Albion Cotton Mills Company includes the installation of 7 cards.

North Carolina, Newton. The Newton Cotton Mills will make an addition to the weaving department. The equipment now consists of 86 looms, operated on canton flannels, and the company expects to bring the number up to a total of 150 looms.

North Carolina, Reidsville. It is proposed to replace all common plain looms in the Edna Cotton Mills with new automatic looms within the next six months. Sheetings and twills are manufactured.

*North Carolina, Statesville. The addition being built for the Paola Cotton Mills will be 136 by 78 feet, of brick construction. The company will add from 5,000 to 6,000 spindles with preparatory machinery, doubling the present plant of 5,500 spindles. Eugene Morrison is president; A. P. Steel, vice-president, and N. B. Mills, secretary and treasurer.

Pennsylvania, Philadelphia. J. & W. Wardlow, 1615 Foulkrod St., Frankford, report the increase of their equipment to 72 looms on which they are manufacturing table damask. They now occupy the entire building.

Pennsylvania, Philadelphia. Richard Voit, operating the Lindley Mfg. Co. at Oxford and Josephine Sts., Frankford, on summer curtains, gauze cotton goods, etc., on 12 looms, has recently leased quarters at Indiana Ave. and A St., in which he is installing 12 broad looms to be operated on bedspreads. It is Mr. Voit's intention after the first of April next to consolidate both plants at the Indiana Ave. and A St. address.

Pennsylvania, Philadelphia. John Milnes is president and Wesley Milnes, treasurer of the National Tapestry Co., Oxford and Josephine Sts., Frankford, formerly run by other parties. The plant is now being run on portieres, couch covers, yard goods, etc. The equipment of the plant will be largely increased within a short time.

Rhode Island, Pawtucket. The Jenckes Spinning Company has started a branch plant in a factory building on Division St. One hundred and fifty-five looms will be installed.

*Rhode Island, Providence. The previously reported enlargement made by the Interlaken Mills give this concern 28,272 ring spindles, 10,304 mule spindles and 944 looms. This is an increase of about 40 per cent. Book cloths and similar fabrics are manufactured.

Rhode Island, Warren. A tract of land has been purchased by the Parker Mills, and according to a report, an addition to the plant will be erected.

South Carolina, Buffalo. Six new boilers are now being installed in the plant of the Union-Buffalo Mills Co., Inc.

South Carolina, Chester. It is reported that a large addition is to be built to the Eureka Cotton Mills. Cotton yarns and sheetings are manufactured on present equipment of 23,000 spindles and 500 looms.

South Carolina, Columbia. One thousand spindles have been ordered by the Glencoe Cotton Mills and will be installed as soon as received.

South Carolina, Conestee. It is reported the Conestee Mills are considering the matter of replacing the entire weave room equipment with new automatic looms. The mills are at present equipped with 15,000 ring spindles and 371 looms, making sheetings and drills. Thos. I. Charles is president and treasurer.

*South Carolina, Iva. All contracts have been let and material ordered for the improvements and increases which it has previously been reported would be made by the Jackson Mills.

South Carolina, Liberty. Additional spinning frames have been ordered by the Maplecroft Mills. An increase was made in the spinning department early in the year.

*South Carolina, Pickens. The enlargement at the Pickens Mill is completed and increases the number of operatives from 250 to 300 hands.

*South Carolina, Seneca. Following the completion of the new addition to the Seneca Cotton Mills, the picking machinery and slashing equipment will be moved into the new space from the old mill The space in the old mill vacated in this way will be filled with carding and weaving machinery, some of the plain looms being transferred to this plant from the Beaver Dam Mills at Edgefield. About $30,000 is being expended.

South Carolina, Ware Shoals. The equipment of the new mill built for the Ware Shoals Manufacturing Company, including 15,000 ring spindles and 300 looms will be operated on osnaburgs and other heavy cloths, and will not be in full operation before April first. Electric power equipment is being installed.

*Tennessee, Knoxville. It is estimated the cost of the buildings being erected at the Brookside Mills will be $100,000. Work has already been started by the contractors, Sullivan & McNally Co. of Paterson, N. J. The architects are F. P. Sheldon & Son, Providence, R. I.

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Mills Starting Up.

Georgia, La Grange. Howard P. Park, president and treasurer of the Park Cotton Mills, whose plant has been idle for some time, expects to resume manufacturing before long. The plant contains 2,000 ring spindles and 52 looms which have been operated on 37-inch drills.

*North Carolina, Bladenboro. The new Bladenboro Cotton Mills, Inc., will begin manufacturing in January. The company was organized about a year ago, and has built a mill and equipped it with 8,208 spindles. Coarse yarns 8s to 14s will be manufactured.

*North Carolina, Charlotte. The plant of the new Johnston Manufacturing Co. is completed and manufacturing has begun. The equipment includes 5,000 spindles making coarse cotton yarns. C. W. Johnston is president, and Horace Johnston, secretary and treasurer.

South Carolina, Charleston. The Royal Millls will begin manufacturing early in the new year. This concern succeeded the Royal Bag & Yarn Company which shut down about a year ago.

WOOLEN.

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New Mills.

*Massachusetts, Boston. The wool combing plant, to be established by J. A. Middlebrook, formerly secretary and manager of the Talbot Wool Combing Company at Norton, will be located at 310 Border St., East Boston. The building is ready for the installation of machinery, and Mr. Middlebrook expects to begin operations the first week of February, 1913. All grades of wool will be combed on commission, and the equipment will include 12 worsted cards and 10 combs. One hundred hands will be employed. A charter is to be secured at once for the Middlebrook Wool Combing Company, Inc Mr. Middlebrook will be elected president and J. W. Coggeshall, treasurer.

*Massachusetts, Clinton. Machinery to be used by the new Abbotsford Worsted Co. has arrived here and is being set up in the Wheelock Wire Mill, where space has been leased by the new company. Six looms will be operated on worsted goods, and it is expected that manufacturing will be started inside of a week. Frank Scoon, formerly designer at the Earnsdale Worsted Mills, heads the company.

*Massachusetts, Hudson. The mill building for the new Wottoquottoc Worsted Co. is nearing completion and work on the interior will be started within a few days. It has been noted previously that this company was organized with capital stock of $90,000 to manufacture worsted yarns.

Massachusetts, Lawrence. Ernest Lord, formerly employed at the Nemasket Worsted Mills at Middleboro, and his son, have leased manufacturing space at the corner of Broadway and Cross St., and are installing machinery for weaving fancy worsted cloths.

Massachusetts, Millbury. Several months ago it was reported that the Millbury Mills had purchased the worsted drawing and spinning frames formerly operated by Brown & Whittier at Lawrence, Mass. This equipment, consisting of one set of drawing and nine spinning frames, has been installed in a building in Millbury Centre, owned by the Millbury Mills, and is operated under the style of the Millbury Spinning Co. C. A. Root of Uxbridge is treasurer.

*Pennsylvania, Philadelphia. The new Superior Textile Mills at the N. E. corner of Montgomery Ave. and Howard St. will begin operations in January, making men's wear and dress goods on 20 looms, and doing burling and mending for the trade. A charter will be applied for in January with capital stock of $15,000. Chas. E. Weber will be president and buyer; Alfred R. LeMark, treasurer, and Wm. J. Simpson, superintendent.

Enlargements and Improvements.

Canada, Ontario, Meaford. The Meaford Woolen Mills are building a cement addition, 176 by 50 ft., part 3 stories high and the rest 2 stories high. Blankets, sheetings and yarns are manufactured.

*Connecticut, Killingly. A large quantity of new machinery has been installed in the plant of the Assawaga Co., Inc., carrying out the plan for replacing much of the old equipment which was reported in the summer.

Connecticut, Rockville. A brick storehouse is being built on the east side of the plant of the American Mills Co.

Illinois, Rockford. The Rockford Woolen Cloth Mfg. Co. has purchased seven looms and a dresser from the Woolen Mfg. Co. at Beaver Dam, Wis., and will also install new dye kettles. The plant has been started up under the management of T. H. Donlevy, formerly superintendent of the Woolen Mfg. Co. of Beaver Dam

Massachusetts, Newton. The Saxony Worsted Mills are adding new electric power equipment, including a 500 k. w. Curtis turbo-generator, motors and switchboard apparatus, furnished and installed by the General Electric Co.

Massachusetts, Rochdale. A new wool dryer is being installed in the Rochdale Mills of the American Woolen Company.

Massachusetts, Worcester. Contract for a 1-story addition to be of brick mill construction, 70 by 34 ft., has been awarded by Geo. E. Duffy Mfg. Co., manufacturers of wool overcoatings, cloakings and dress goods.

*New York, Yonkers. Alexander Smith & Sons Carpet Co. have been granted a permit for the erection of the proposed large brick addition to the axminster department.

Ohio, Hamilton. Increases and improvements are being made by the Miami Woolen Mills, Schuler and Benninghofen, proprietors. By February first they will have 9 sets of cards, 3,036 spindles, and 42 broad looms. Felts, blankets and shawls are the chief products

Pennsylvania, New Cumberland. New spinning equipment is being installed in the plant of the Susquehanna Woolen Co. Recently a number of new looms were installed. Woolen blankets are manufactured.

Pennsylvania, Philadelphia. C. H. Masland & Sons, manufacturers of carpets and rugs on 200 looms at Amber, Westmoreland and Collins Sts., have recently purchased from the Lafferty Estate the large plot of ground, 240 by 206 ft., 8 in., at Frankfort Ave. and Westmoreland Sts., on which the company is arranging for the erection of a four-story building, 200 by 240 ft. A local builder has the matter in charge and is now asking for bids with a view of starting the operation at once.

*Pennsylvania, Philadelphia John & James Dobson, who recently took over the Dearnley Worsted Spinning Mills at 8th and Somerset Sts., will extensively increase the equipment according to report. Two new cards have already been installed and a considerable amount of other machinery will be put in at a later date. The plant is running full on worsted yarns (Bradford system) with D. C. Blackwood as superintendent.

Rhode Island, Harrisville. While some increases will be made in the plants of the Stillwater Worsted Co. in the near future, following the recent increase in the capital stock from $450,000 to $1,100,000, nothing has been definitely decided upon at this date.

Tennessee, Sweetwater. A new cloth washer and a cloth dryer have been installed by the Sweetwater Woolen Mills.

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Mills Starting Up.

Iowa, Manchester. It is expected the Manchester Woolen Mills, which have been shut down indefinitely, will be reopened next February. The plant contains 3 sets of cards and 11 looms on which blankets and skirt goods have been manufactured.

*Maine, Corinna. Machinery is being installed in the plant of the new Corinna Manufacturing Company, under the supervision of F. J. Ward, the superintendent. Operations will begin January 1st.

Massachusetts, Haverhill. Emmons Bros. Co., manufacturers of ladies' wool hats, are increasing this year from 11 sets of cards to 18 sets of cards.

Massachusetts, Holden. The Darling Mfg. Co., operating plants at Worcester and Holliston, Mass., has purchased the plant of the old Dawson Mfg. Co. and will start it up in January. Eighty hands will be employed. There are six sets of cards and 25 looms, on which overcoatings will be made under the supervision of Walter Neiber. All buying will be done by Fred R. Smith, the treasurer of the company.

Massachusetts, Hubbardston. Manufacturing has been resumed in the plant of the Hygienic Blanket Co. The plant has been closed for several months while the financial difficulties of J. E. McWilliams, who owned the property, were being straightened out.

*Massachusetts, West Millbury. The Millbury Mills will simply run the weaving department at the Ramshorn Mill for the present.

*New Jersey, Gloucester City. T. J. Breslin will leave A. & M. Karagheusian at Freehold, N. J., to start up the plant of the Fries-Harley Co. about the first of January. Mr. Breslin purchased the plant of the Fries-Harley Co. at the recent sale for $71,500, as noted.

Mills Shutting Down.

*Rhode Island, Shannock. The Equitable Felt Company, previously reported as to go out of business, has shut down its plant.

KNIT.

New Mills.

*Canada, Ontario, Niagara Falls. It is expected the Canadian plant of the Visor Knitting Co., of Niagara Falls, N. Y., will be opened soon after Jan. 1. The company has secured the old Armory Building, and in the past few weeks this has been remodeled to adapt it for the manufacture of sweater coats and other knit goods.

Illinois, Chicago. Ten knitting machines have been installed in the building at the corner of Franklin and Huron Sts. by the new Shaker Knitting Mills Company, incorporated early in the month with capital stock of $25,000. Only high grade lines of sweaters and knitted goods will be made, and the initial equipment will gradually be increased as the business develops. D. C. O'Shea has been elected president and buyer, and John L. Feldhake, treasurer. Mr. O'Shea was formerly in charge of the local manufacturing department of A. G. Spaulding & Bros. A. Hezinger, who was also in the employ of A. G. Spaulding & Bros. as a machine fixer is interested in the new concern, and has charge of the machinery.

*Canada, Ontario, Hamilton. Richard Thomson, Harold G. Smith and John Penman, who it was previously reported would establish a knitting mill in Hamilton, will operate under the trade name of Thomson & Smith. These men were formerly connected with Penman's, Limited.

Indiana, Evansville. R. E. Losey is establishing a hosiery plant at Olive and Canal Sts. F. Marvin Austin is associated with Mr. Losey in the enterprise, and will act as buyer. The business is to be conducted under the name of the Evansville Hosiery Company and men's half hose will be manufactured on equipment of 15 84-needle knitting machines, 2 ribbers, and 2 loopers. 6s and 10s white and 8s mock twist in black, brown and blue mix will be used.

*Ohio, Cleveland. A plant is being established at 5701 Euclid Ave. by the Empire Knitting Co., reported incorporated last week with capital stock of $25,000. Lines of men's, boys', women's and children's knitted sweater coats and fancy knitted goods will be manufactured after January 1 and the product will be sold direct to the retail trade. Mark L. Cohn, who will be president and have charge of the plant, has been connected with the Standard Knitting Co. of Cleveland. Associated with him as treasurer is Wm. S. Adler. Isaac G. Haas, Herman V. Haas and Simon Sitzman are also interested. The plant will be operated by electric power.

Ohio, Cleveland. A new company has been organized under the style of the Lion Knitting Mills Company with capital stock of $25,000 and will manufacture men's, women's and boys' high grade fashioned sweaters and sweater coats in the Whitney Bldg., 1051 Power Ave. S. H. Einstein is president, treasurer and buyer.

Pennsylvania, Lansdale. The mill of Tonner & Moyer, recently opened by them in this town, is located in a building on Pierce St. There are 30 knitters and it is proposed to enlarge the equipment within a short time.

*Pennsylvania, Norristown. The new branch mill recently started here by Wallace Wilson at Marshall and DeKalb Sts. has been equipped with 54 latch knitters, 40 ribbers and 8 loopers on which they are manufacturing infants' worsted hosiery, under the management of Harry Parker, Jr. The main office is located on Orchard St., in Frankford, Phila.

Pennsylvania, Philadelphia. The Reliable Knitting Mills, a new concern about to start up in this city for the manufacture of sweater coats and bathing suits, will take over the equipment of the Ferry Knitting Mills located at 118 Ferry St., Newark, N. J., and remove it to this city. They are now arranging to purchase this equipment, which includes 6 knitters, 6 sewing machines and other machinery. Morris Wenger will be the superintendent and the plant located at 271 S. 5th

Pennsylvania, Philadelphia. Under the name of the Standard Knitting Mills of Pennsylvania, Harry Cohen & Co., with H. Seifert as superintendent, are about to start up a plant for the manufacture of Shaker knit sweater coats in this city. The plant will be equipped with 10 flat knitters and 12 sewing machines which they will run by electric power. The production will be sold direct from the temporary offices of the company at 678 Bourse Bldg.

*Pennsylvania, Schaefferstown. On December 16 the new concern which is to manufacture men's and women's hosiery under the name of Houser's Hosiery Mills will begin operations with 10 knitting machines, 3 ribbers, 2 sewing machines and finishing equipment. 12s, 14s and 40s single yarns will be used. The plant will be operated by steam power. Chas. Houser is the president and buyer and Isaac Houser, superintendent.

*Tennessee, Riceville. George DeGroote and his associates have completed arrangements to build a hosiery mill which will be equipped and operated by the Davis Hosiery Mills of Chattanooga.

Enlargements and Improvements.

Canada, Manitoba, Winnipeg. A new 2-story factory building, 50 by 112 ft., is being erected on Arlington St. for the Northland Knitting Co., manufacturers of worsted knit goods. All details of the increase to be made in the equipment have not been worked out.

*Canada, Ontario, Galt. The work of rebuilding the plant of the Galt Robe Co. is going forward. The new factory will give increased facilities. Electric power will be installed throughout.

*Illinois, Kankakee. A 3-story addition, 40 by 60 ft., is to be built to the plant of the Paramount Knitting Co. at a cost of $7,000. The new

space will be used for spinning cotton yarns. The main office is in the Hunter Bldg., Chicago.

Iowa, Iowa City. J. H. Guzeman, proprietor of the Pioneer Knitting Works, which were destroyed by fire in October, will rebuild next summer. He expects to have the new plant in operation about the first of July, 1913.

*Maryland, Frostburg. It has been decided to add 20 more machines to the new branch plant of the Parker Hosiery Mill & Dyeworks.

*Maryland, Emmitsburg. Thirty hosiery knitting machines have been installed in the new branch plant of the Union Mfg. Co. of Frederick, Md., which is located in Green St., Emmitsburg, and manufacturing has been started. A gasolene engine furnishes the power. This branch will be managed, financed and controlled from Frederick, and all purchases will be made there. The product will be shipped to Frederick for finishing.

*Minnesota, Duluth. Excavation work for the foundation for the new mill of F. A. Patrick & Co. is nearly completed. Whitney & Co. have the contract for the foundation, and the general contract was awarded to J. H. Lounsberry & Co., who are making an effort to have the building completed about April 15. As noted previously, this mill will be a 3-story structure in two sections, each 60 by 140 ft., connected by another section, 50 by 80 ft. One of the large sections will be used as a garment factory and the other large section will be equipped as a knitting mill. The hosiery department of the Mankato Mills Co. of Mankato will be brought here.

SILK.

New Mills.

*New York, Brooklyn. The Mace Manufacturing Company, a new concern located at 908 Broadway, is operating 4 looms, 15 knitting machines, and 22 sewing machines on knitted neckwear and woven necktie silks. The company has capital stock of $5,000. John M. Balsam is president and buyer. T. S. Moore is treasurer, and S. Wohl, superintendent. These men have been for years engaged in the neckwear business and have just entered the line of manufacturing their own goods.

*New York, Fultonville. Repairs and enlargements have been completed by the Mohawk Silk Fabric Company, and the plant is now in full running order and is working to full capacity. Several months ago this plant was partially destroyed by fire. The burned part has been rebuilt and a two-story enlargement, 50 ft. square, has been added. The equipment has been increased to 18 looms and 175 sewing machines. For the present the branch at Schenectady has been discontinued.

New York, Phoenix. The Duffy Silk Co. is negotiating for the purchase of the Phoenix Fuel, Light & Water Co. which supplies power to the Silk mills. If the purchase is completed the Duffy Silk Co. plans to double its plant. Silk throwing is done.

New York, Sidney. The plant of the Hartley Silk Mfg. Co. is to be enlarged and 30 looms have been ordered. Broad silks are manufactured. The headquarters are at Towanda, Pa.

*Pennsylvania, Bangor. The Pennsylvania Silk Co., reported incorporated in August with capital stock of $36,000 by Henry Wilde and others, will take over the plant of the Reliance Silk Co., now located in the Ward St. Mill, Paterson, where 70 looms are operated on broad silks. The equipment will be increased to 160 looms. Mr. Wilde is manager.

Pennsylvania, Chambersburg. A 4-story addition, 60 by 120 ft., will be built to the Chambersburg Silk Mill, recently purchased by the Cedar Cliff Silk Company of Haledon, N. J.

Pennsylvania, Hazleton. The Duplan Silk Mills are arranging for the erection of a new mill, 600 by 88 ft., two stories in height, as an addition to their present plant. The second floor of the new mill will be used for the installation of 500 new looms. The other portions of the mill will be used for storage and weaving purposes. The operation will be started after January first, and pushed to completion as speedily as possible.

*Pennsylvania, Stroudsburg. In November a report was given of the incorporation of the Fellows-Huber Company with capital stock of $75,000. The new company is building a mill on Harris St., East Stroudsburg, which is to be equipped to weave a high grade of silk dress goods and tie silks. The mill will have a capacity of 150 looms, although manufacturing will start with 50 looms. All new machinery will be installed, and it is expected operations will begin during March, 1913. Electric power equipment will be installed. H. B. Drake of East Stroudsburg is president; F. W. Grant of Ithaca, N. Y., vice-president; C. L. Fellows of Binghamton, N. Y., secretary and treasurer; and A. C. Huber, general manager. Mr. Fellows and Mr. Huber attend to the buying.

*Pennsylvania, York. Ten knitting machines have been installed in one of the buildings of the Pennsylvania Textile Company, and are just being started up on knitted ties. The Pennsylvania Textile Company is working on details of the proposed lace and veiling departments preparatory to placing orders.

Rhode Island, Central Falls. The Bengal Silk Mills have purchased the building here into which they removed recently from Providence, and also sufficient ground on which to build, although it is understood there is no immediate prospect of the construction of an addition. They report business very good, and an increase may be made in the spring of 1913.

Mills Starting Up.

New York, Ballston Spa. The new plant of the Clark Textile Co. of Saratoga Springs, which has been opened here, has begun manufacturing. Sewing machines are being operated on ladies' silk gloves. Sewing only is to be done, about 40 machines having been installed.

New Publications

(Any work noticed under this head can be obtained through the office of this journal.)

The Story of Textiles; by Perry Walton; 274 pages, 6 1/2 by 9 1/2; compiled and written for John S. Lawrence.

The sub-title of this book rightly explains its scope as "A Bird's-Eye View of the History of the Beginning and Growth of the Industry by which Man-Kind is Clothed." The author has shown excellent judgment in the perspective and balance of his work. He has grouped facts concerning the early history and development of the industry up to its present advanced state in the most interesting way and told the story with freedom from technicality which makes it interesting to anyone, and particularly to those connected directly or indirectly with the great textile interests. The invention of the various power machines which revolutionized the manufacture of textiles in the various stages of its development is clearly explained. The book is profusely illustrated with portraits of inventors, pioneers and men of prominence, who have been influential in the development of textiles. From the time of American independence it is the best and most comprehensive history of American textile manufacturing with which we are familiar. The story of the early cotton mills at Beverly, Waltham, and Philadelphia is clearly set forth and the development of the industry which is now the second most important in this country, is traced from its modest beginning, and the early history of our leading textile mill cities is told John S. Lawrence, for whom this book has been printed and by whom it is published, is a partner in the firm of Lawrence & Co., Boston, well known as one of the largest commission houses for the distribution of textile products in America. He has done the industry a service in collating the information in this volume and is to be congratulated upon having found in Mr. Walton, of the Walton Advertising & Printing Co, an author who could so successfully accomplish this task. The book is handsomely printed on heavy paper and attractively bound in cloth covers.

A Manual of the Textile Industry (Aide-Memoire de L'Industrie Textile), by D. dePrat, civil engineer and professor of spinning and weaving; 375 pages, 4 1/4 by 7; Ch. Beranger, 15 rue des Saints-Peres, Paris, France, and 21 rue de la Regence, Liege, Belgium. Price, $3.00.

The author has compiled this work for the purpose of placing in condensed form convenient for reference as much information as possible relating to the textile industry. It is, of course, impossible to give an exhaustive treatise of each branch of textile manufacturing within the compass of a volume of this size, but the author has succeeded in collecting a mass of data that will be found of great value to mill owners, overseers, employes and dealers in textile materials. The following abstract of the table of contents will give an idea of the scope of the work: Comparison of French and English weights and measures; calculations for power transmission; the textile fibers; yarn numbering; comparative yarn tables; testing yarn and fibers; conditioning; the spinning of cotton, woolen, flax, hemp, jute and silk; artificial silk; sewing thread; weaving; commercial information; raw material market; a list of textile books; textile journals; a dictionary of textile terms in French, German and English arranged in three forms — French-German-English, German-French-English, and English-French-German. The text is in French

A Manual of Power Weaving (Nouveau Manuel Complet de Tissage Mecanique), by R. Lariviere and F. Jacobs; 539 pages, 3 3/4 by 6; L. Mulo, 12 Rue Hautefeuille, Paris, France. Price, $1.50.

This is one of the Roret series of manuals and contains a study of the various textile fibers with chapters on the preparation of raw material for weaving. The remainder of the work is devoted to the construction and operation of power looms. Following is an abstract of the table of contents: Origin of weaving, textile fibers, textile processes preparatory to weaving, weave construction, the loom, finishing process, conditioning, cloth analysis, estimating cost, motive power, glossary of textile fabrics. The text is in French.

Year Book of the Cotton Industry, 1913 (Jahrbuch mit Kalender fuer die Baumwoll-Industrie), by Prof. M. Lehmann; 600 pages, 3 1/2 by 6; H. A. Ludwig Degener, Leipzig, Germany. Price, $1.50.

The author has compiled a large amount of information on a great variety of subjects relating to the cotton industry, and arranged it in systematic order in this volume under the following heads: History of the cotton industry; cotton growing, grading, statistics; dealing in cotton; spinning, twisting weaving; factory plans; yarn numbering; comparative yarn tables; textile calculations; market standards for yarn and cloth; weights and measures and miscellaneous. A diary for 1913 is also included along with information regarding postal and telegraph rates and regulations. The text is in German.

BUSINESS LITERATURE

The "Ideal" Automatic Loom; The Stafford Co., Readville, Mass.

A handsomely printed and finely illustrated catalogue has been issued by this company describing the various types of the "Ideal" automatic loom. The first chapter is devoted to a description of the general principles of the "Ideal" loom which is followed by a mechanical description with drawings of the automatic shuttle changing motion, the pick finder, and directions for setting up the loom for plain two harness work and other suggestions. Illustrations are shown of the standard two harness loom with the specifications of its equipment; the drill loom; the intermediate construction loom suitable for weaving a varied class of fabrics up to 74 inches, plain or fancy, light or heavy. The

broad loom is made in four sizes: 81 inches, 90 inches, 99 inches and 108-inch cloth spaces. This is a heavy, strongly built loom with weight and reinforcement added where most needed. A pillow tubing loom is shown, the feature of this loom being the patented head motion of a simple type which does away with side cams. The "Ideal" bag loom illustrated makes a complete bag with two sides and bottom woven in. The length of bag can be regulated as desired by lengthening or shortening the chain. Their automatic loom with dobby is made in three models; these looms are being operated on a wide variety of fabrics, ranging from dress goods to coarse towels. One of the most recent adaptations of the "Ideal" automatic loom is their harness loom for weaving worsteds and woolens where one color of filling is used. This loom is illustrated. To meet the demand for duck and tire fabrics a specially heavy type of loom has been developed for making up to 12-ounce ducks and tire fabrics, which weighs over 3,000 pounds for a loom to make 30-inch cloth. The picture shows this new model to be a strong, rigid machine capable of being operated at a high speed with a minimum of breakage and wear and tear. The Terry towel loom is another special construction to weave terry towels without any chain stitch or fringe and with one color of filling. A picture is shown of the standard Stafford dobby for weaving all manner of fancy goods ranging from 8 to 25 harness. This catalogue also contains numbered plates showing all the different parts of the looms to facilitate the ordering for replacement. The catalogue is printed by the University Press, of Cambridge, Mass. and substantially cloth bound. All manufacturers and superintendents of weaving will find it a most interesting publication.

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Wildt & Co., Leicester, England.

A new catalogue of knitting and auxiliary finishing machinery, profusely illustrated, is issued by this well known English firm. It embraces a line of seamless automatic hose and half hose machinery, ribbers, body machines, necktie machines, also the "Terrot" circular machine and a big line of auxiliary machinery, including seamers, etc.

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Engineering of Shops and Factories, by Henry G. Tyrrell, C. E., 400 pages, 6 by 9; McGraw-Hill Book Co., 239 West 39th St., New York. Price, $4.00.

The value of a good engineer in the planning and managing of manufacturing enterpises will be better appreciated by a reading of Mr. Tyrrell's book, which is based on his personal experience of more than 20 years as a mill engineer. Following is an abstract of the table of contents: Engineers and their services, manufacturing district, economies of factory construction, example of preliminary design, general design, selection of building type, wood and steel framing, concrete buildings, concrete surface finish, cost of reinforced concrete buildings, foundations, ground floors, upper floors, concrete upper floors, walls, partitions and openings, roofs and roofing, special buildings, storage pockets and hoisting towers, factory heating, air washing systems, factory lighting, drainage of industrial works, water supply and storage tanks, steel chimneys, fire protection, cranes, yards and transportation, estimates, construction, welfare features.

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The National X-Ray Reflector Co., Chicago, Ill.

A series of beautiful photogravures illustrating installations of the Eye Comfort system of indirect illumination. Accompanying each picture is a brief description giving dimensions of room, character of the fixtures and the kind of X-Ray installation, including the lamps and fixtures that are used. These are arranged on a loose-leaf system and anyone who is interested in any particular kind of installation may have photographs and specifications sent. The idea is an excellent one and finely carried out.

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Elevator Service; The Otis Elevator Co., 11th Ave. and 26th St., New York.

An illustrated pamphlet calling attention to the facilities of the Otis Elevator Co. for inspecting and making repairs to elevators. They have a service department which includes factory trade experts familiar with elevator construction who with an automobile service for expediting the delivery of needed parts are on call at all times. The Otis Elevator Co. have also made a specialty of supplying elevator lubricants which have been adopted after long study and experience, which warrants their being recommended for the purposes for which they are intended.

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The Modern Method; Bosson & Lane, Atlantic, Mass.

This pamphlet contains directions for bleaching by the improved method with the use of B & L bleaching oil which softens the fibre and loosens all foreign substances, preparing the cotton for the subsequent bleaching process. The advantages of this process include an improved tint and a reduction in quantity of chemicals and steam used. The directions for preparing and bleaching cotton are very clear and based on long experience and careful observation of the process. The pamphlet also contains a table of specific gravities and the Beaume and Twaddel degrees are shown in parallel colums.

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Scientific Tiering with a Revolvator; New York Revolving Portable Elevator Co., Jersey City, N. J.

This booklet contains an illustrated description of the revolvator built by this company and which is meeting with great success both in this country and abroad. It increases the storage capacity of warehouses, reduces the labor cost of handling materials, enables bulky packages to be compactly stowed away, reduces breakage and facilitates the removal of merchandise from warehouses. Among the many views of the revolvator in use are two sent by a French warehouseman at Rheims, France. One shows the old methods in which seven men are engaged storing sacks of wool in a warehouse, while the other shows two men with a revolvator doing the same work.

Dyestuffs for Wool; Cassella Color Company, New York.

A very compact and comprehensive volume descriptive of those colors best suited for the wool dye-house and covering every degree of fastness from normal to colors required to meet the most exacting demands of the finishing department and of actual service in the form of dress goods. It is illustrated with 700 separate dyeings, comprising a series of acid colors, after-chroming colors, chromate colors, chromed colors on chromed wool and those Diamine colors that are of first importance in the wool industry. The volume contains fifteen pages of directions for the application of these several groups of colors to wool, fully explained and described in fourteen separate methods. A careful study of each of these methods on the part of the wool dyer will be found of very great value. Wool dyers may obtain a copy of this valuable compendium upon request to any of the branches of the Cassella Color Company.

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CALENDARS FOR 1913

The Root Mfg. Co., Cohoes, N. Y., manufacturers of underwear, are sending out to the trade a handsome large wall calendar bearing a picture of a flock of sheep.

The William Kedward Dyeing Co., dyers and bleachers of mercerized and cotton warps and skein yarns, of 246 Chestnut St., Philadelphia, are sending out to the trade a large wall calendar.

The Steel Heddle Mfg. Co., 2100 West Allegheny Ave., Philadelphia, Pa., manufacturers of the Duplex heddle, drop heddles and wires for stop motions of every description, have issued a large wall calendar bearing a picture of their plant and giving a list of the machines they manufacture.

Thomas Wolstenholme Sons & Co., manufacturers of French and Bradford spun yarns, Philadelphia, Pa. A large wall pad, 22 by 14 inches, with a leaf for each day of the year.

The Draper Co.'s calendar for 1913 preserves the characteristics of last year's calendar, but the design for the back is new and even more artistically worked out. A fine reproduction in colors of the Northrop loom is shown. The photogravure picture over the calendar pads illustrates their new settlement of attractive cottages in Hopedale on Lake St., west of the pond, the houses in the foreground being those that were completed in 1911. As an illustration of a model factory village it has few equals.

The high standard set by the beautiful calendars previously issued by The Grosser Knitting Machine Co., 260 West Broadway, New York, is well maintained in the 1913 calendar which is a reproduction by color photography of the painting by H. J. Dobson entitled "Bobbie Burns and Highland Mary." Those who are familiar with Burns' poems will recall those in which he describes his first sweetheart, Mary Campbell, and this picture shows the interior of the actual Burns cottage. Mary is sitting by the fireside knitting, which makes the scene particularly appropriate for the use of the Grosser Knitting Machine Company.

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The Acme Knitting Machine & Needle Co., Franklin, N. H., issue a dainty calendar of novel design with a view of what may be a New Hampshire trout stream. It is so dainty and attractive that if it escapes being carried to the home of the recipient it will surely find a place in the private office.

Industrial Notes

A LONG RECORD

It is probable that Edward E. Burnham holds the record for the longest continual representation of any Boston firm as a traveling salesman. On the 10th of November, 1871, 41 years ago, he started out on the road for the firm of Masury, Young & Co., now Masury-Young Co., importers and dealers of oils, greases, etc., 99 Central St., Boston, Mass. He has been with the firm ever since and there is no man in that line of business better known in the offices of more mills than Mr. Burnham. He is now 74 years of age and on his regular round of calls is welcomed by a host of friends among mill managers, many of whom he has seen grow up from boyhood through different departments of responsibility.

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THE CONTINENTAL LATCH NEEDLE COMPANY

The Continental Latch Needle Co., 120 Liberty St., New York, are now in position to supply sinkers for the hosiery trade. They have recently made arrangements with a large German manufacturer and expect shortly to carry a stock of the principal styles of sinkers and similar articles. They request manufacturers to send them samples of what they are using and allow them to quote prices for supplying the goods, which if satisfactory, might result in a trial order. When sending the samples it should be stated for what machines they are intended. They will supply sinkers for full automatic circular machines and for full fashioned machines, also quills for transfer work.

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"1913 WILL BE A HUMMER"

"The year 1912 witnesses the passing of the million mark in the number of licensed automobiles in the United States," says H. B. Pruden, Manager of the KisselKar New England Branch. "This is an estimate, but an ultra-conservative one in view of official figures compiled for the first nine months, which showed 990,738 automobiles in service in this country. Of this imposing total, 266,670 are 1912 models. Thus it appears that the average monthly sales reached more than 22,000.

"Judging by the highly gratifying increase in the sales of KisselKars and KisselKar Trucks, our company has ample ground for rejoicing. As for

the future, we are optimistic. Indications are that the year 1913 will be a 'hummer'. This is not a mere wish, but is based upon advance orders and inquiries that point unmistakably to it. And the most pleasing thing about the situation is that at last we are prepared to meet the demand."

MILLER & MERRICK

After the death of Mr. Goodale of the firm of A. M. Goodale & Co. the business was continued by the Estate in charge of Miss H. K. Miller until the recent establishment of Miller & Merrick, brokers in cloths and yarns at 170 Summer St., Boston. Miss Miller retains charge of the settlement of the business of A. M. Goodale & Co. R. W. Merrick leaves the Jenkins Manufacturing Co. of Braintree, where he has been for the last six years as superintendent. Previously he was salesman for A. M. Goodale & Co.

DODGE WATER SOFTENER IN ROCK RUN MILLS

The Dodge Manufacturing Company, Mishawaka, Ind., has closed a deal with the Rock Run Mills, Goshen, Ind., for an Eureka water softener with storage tank and tower and housing complete. The installation will be made by Dodge engineers, and they will personally instruct the one who will have charge of the machine, turning it over in good running order to the customer.

The Rock Run Mills is a branch of the Stevenson Underwear Mills, South Bend, Ind., and has just recently been opened for business. The water supply at Goshen not being satisfactory for mill purposes, the owners, after a thorough investigation, selected the Dodge Eureka apparatus to fill their requirements. The machine will have a capacity of 7,500 gallons per hour.

REDUCTION IN PRICE

The Joseph Dixon Crucible Company of Jersey City announce that the selling price of their Silica-Graphite "One Quality Only" Paint is reduced. They make this reduction because of the decrease in the price of linseed oil, which is used as the vehicle. It is their aim at all times to give their customers any benefit possible in reduction of price of materials.

This well-known paint which has been the standard for nearly 50 years with leading railroads and manufacturing plants as a maintenance paint, is a perfect, long service protector of all exposed steel and metal surfaces.

FINISHING COMPOUNDS

The Arabol Mfg. Co., 100 William St., New York, are among the largest manufacturers of starches, sizing compounds, softening oils, softeners and related articles for all branches and varieties of textile manufacture. They are well equipped by modern machinery, laboratory, practical experience and scientific management to give most satisfactory service to manufacturers. They make it their specialty to meet any particular condition of textile manufacturing.

KNITTING YARN

Thomas H. Ball, worsted yarns, has opened an office in New York at 251 Fourth Ave. under the direction of Philip Polak for the handling of knitting yarns exclusively in New York and vicinity, including worsted, woolen and merino yarns.

ANCIENT SHODDY

Among the cloth-consuming public no fallacy is deeper-rooted (says a writer in the "Journal" of the Royal Society of Arts) than that the rage for cheapness, and the accompanying sophistication of goods, is a product peculiarly of these later days. On this point the records are reassuring, to the extent of showing human nature to be much the same at different dates. George Dodd, in "British Manufactures" (1844), deplores the "curious excess of ingenuity" exhibited in cheapening goods. He refers to "a process termed 'plating,' which bears the same relation to the real silk manufacture as metal-plating to the manufacture of silver." The process consisted in winding a coating of silk on a core of cotton, and there is Dodd's word that "the history of our textile manufacture within the last dozen years is full of examples of this kind."

Each complainant blames his own time, neglecting those inquiries which show that even in 1623 "many ill-disposed persons have used to mixe and putte Flockes and Thrumes and alsoe Noiles and Haires and other deceivable things into broad Woollen Cloths." The assurance comes from the Statute Book, and is equivalent to saying that under James I. woolen manufacturers made use of shoddy. It was their reprehensible way to apply tallow and much more offensive agents to their cloth. A document of the period adds: "If a cloth prove tender and will not thick kindly in the mill, then have they medicines to help it, with oatmeal and such like." A century before that time Parliament had been invoked to regulate the class of oil that manufacturers should employ. The evidence does not exhaust the indications that our case is not seriously worse than ever, and there was never a time when textile mills produced greater quantities of genuine articles than is done at present.—The Textile Mercury.

THE AMOSKEAG BULLETIN

So far as we know the Amoskeag Bulletin is the first journal to be published by operatives in the interest of any one large textile plant. This very well printed and newsy publication is issued twice a month by the Amoskeag Textile Club, an organization of employes of the Amoskeag Manufacturing Co., Manchester, N. H. The Bulletin is filled with interesting mill news and Manchester happenings. This great mill with its 16,000 employes is a big community in itself and the idea of publishing a newspaper which will enable its many thousand employes to keep posted on what is going on in its various branches of activity is an excellent one and well carried out.

THE HOME OF THE FIRST KNITTING MACHINE

This is a picture of the house in Woodbrough, Nottinghamshire, England, where the knitting machine was invented in the year 1589 by William Lee. It was called a stocking loom. Lee was expelled from St. George's College, Cambridge University, in the year 1585 for marrying contrary to the statutes. Having no fortune he and his wife had a hard time to make a living and she was obliged to contribute toward their joint support by knitting. The story of how Lee conceived the idea of a machine as he watched the motion of her fingers is generally known. The old house is still standing and the picture shows it to be in a remarkable state of preservation. The photograph from which this was made was taken in August, 1910, by John Hadfield, Jr., son of John Hadfield, president of the Hadfield Hosiery Co. of Philadelphia, while on a trip through England.

HOME OF THE FIRST KNITTING MACHINE IN WOODBROUGH, NOTTINGHAMSHIRE, ENGLAND

A FALSE RUMOR

A false report has been circulated in Philadelphia that R. J. Morningstar is no longer connected with the Jenckes Knitting Machine Company. This is entirely without foundation, as there has been no change whatever in his relations with that concern, for which he is representative for Philadelphia and surrounding territory with show room and office at 1211-17 Filbert St. The rumor probably had its foundation through a recent change in business connections of another gentleman by the same name.

COTTON GROWING IN ASIATIC RUSSIA

From Consul General John H. Snodgrass, Moscow, Russia

Moscow textile manufacturers are contemplating a new cotton enterprise in central Asia to exploit the valley of Shirabad, in southern Bokhara. It is proposed to start with a capital of $7,500,000 to irrigate the valley and to adapt it for cotton plantations.

Experiments in cotton culture have lately been made in this district by engineers, who for this purpose rented 5,000 acres from the Ameer of Bokhara, and achieved excellent results. Among others, they experimented with seeds of Egyptian cotton, and, in the opinion of experts, the product is in no way inferior to the cotton of Egypt. This fact has much interested the Moscow manufacturers. Citizens of Moscow, together with several foreign engineers, visited the plantations and were favorably impressed by the results obtained from Egyptian seed.

In consequence of cotton culture in the valley of Shirabad, 70,000 bales of cotton will be added to the market every year, which will have an immediate influence on prices and, at the same time, on Russia's dependency on America. On the other hand, the development of industrial life in that part of Bokhara will create a new market for the sale of Russian goods. A sample Egyptian cotton plant raised in Shirabad will be received in this city soon and will be thoroughly investigated by the Moscow manufacturers, after which the question of the possibility of raising Egyptian varieties of cotton will be finally decided. Besides Egyp-

tian cotton, American varieties have also been cultivated in this valley and have been exported to Russia to the amount of 150 carloads per annum.

BOKHARA CONCESSIONS — EXPORTS

The pricipal promoter of cotton culture in the valley of Shirabad has secured a concession from the Ameer of Bokhara for the expoitation of 200,000 acres for the period of 100 years. The concessionaire is entitled to the use of the water from the River Soorham (a tributary of the Amu Darya) to the amount of 63 cubic feet per second. This supply of water will, it is thought, bring new life into the district.

The valley of Shirabad presents most favorable conditions for the culture of cotton. It is 200 miles south of Ferghana, and, according to the data of the last eight years, there is an average of 190 cloudless days per annum, while the average in Ferghana is only 160. The organizers of this new enterprise propose to settle about 10,000 families in this district, allotting 15 acres to each.

SPONTANEOUS COMBUSTION VERSUS SPRINKLERS

A midnight fire in the waste house of the Whitman Mills was put out by two Grinnell automatic sprinklers before the watchman knew there was any trouble. He promptly shut off the water and replaced the heads, the total loss being limited to $90. The cause was spontaneous combustion.

Spontaneous combustion was the cause of a recent fire in the carpenter shop of the American Thread Co.; one Grinnell sprinkler operated and kept the fire from spreading beyond the small pile of shavings in which it originated. The total loss was less than $500. Considering the nature of material which was burning and the possibilities which it contained of making a very bad fire, the prompt response of the automatic sprinkler was highly appreciated by the management.

AUSTRALIAN MARINE FIBER

For the past three years or so we have recorded from time to time the progress made in the utilization of a fibrous weed dredged from the sea-bottom off the south Australian coast. Many difficulties have been encountered, and (we believe) overcome in the preparation of the material for textile purposes, and it has found its use for mixing with low-class yarns destined for weaving into various sorts of cloths, blankets, etc. Australia is the only known source of supply, but the mass of crude material is so large as to be incalculable; and if it can be dredged and prepared in large quantities and offered at attractive prices, the fiber would no doubt find a market and establish itself as another staple of the textile industries.

Those likely to be interested will find an announcement in our advertising columns of a public sale, on Dec. 10th, in London, of 180 bales of this Australian marine fiber. This is the first consignment in commercial quantity that has thus far been received in this country, and we have no doubt that it will attract the attention of buyers likely to be concerned. The brokers (Messrs. Lewis and Peat, of 6, Mincing Lane, London), have courteously supplied us with a sample of the fiber, which is open to the inspection of any of our readers at our Manchester offices, 5, Carr St., Blackfriars St.—The Textile Mercury.

NEW MANAGER FOR THE NEW YORK CONDITIONING HOUSE

The United States Conditioning and Testing Co., operating the only conditioning house in the United States, located at 340-344 Hudson St., New York, has secured as manager, D. E. Douty, who

D. E. DOUTY

will assume active direction of the company's laboratories January 2.

Mr. Douty has been connected with the National Bureau of Standards, Washington, D. C., since its establishment and while in charge of the engineering and miscellaneous materials division of the Bureau's work has established and equipped a section for textile testing and for investigations relative to textile standardization.

His knowledge of the government's methods of specifying, testing and purchasing should enable him to render valuable assistance to any one

desiring information regarding government contracts.

Under his direction the scope of the New York Conditioning House will be expanded to include all kinds of textile testing both upon the raw materials and the finished product. It is hoped that the United States Conditioning and Testing Co. may ultimately be able to place this country upon the same high plane of standards of condition for textile transactions as is maintained in Europe and that we may ultimately possess conditioning and testing facilities second to none.

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THE PACKING OF AUSTRALIAN WOOL

From the Sydney Mail

Most farmers are honest; but there are a few who think that the topping of bags of potatoes or of the woolpack is quite a legitimate thing. Only the other day a case was brought up in which, while potatoes were worth over £10 per ton, from one bag alone over 30 pounds of soil was taken. Men who indulge in these contemptible practices make a mistake in thinking they can carry on the same dodges in the wool business; they will get a short tether. Yet there are a few such in South Australia, who have been in the habit of topping the wool bales and adopting other false packing to such an extent as to call for an emphatic protest from the Adelaide Woolbrokers' Aesociation. The brokers state that as a result English and foreign wool buyers are likely to lose faith in South Australian wools.

FOOLING WOOL MEN

The false topping of ordinary produce has not always come home to the farmer, on account of the large number of persons who are buyers and the number of hands through which the bags may have passed before the goods were consumed. It is otherwise with wool. If the farmer consigned his ordinary produce to a market where only a comparatively few firms operated, and where the firms either used the goods or passed them on to some other firm, the producer would soon find that, if he persistently placed his choicest potatoes at the top of the bag, or he packed his bad hay in the center of the bale, or engaged in other malpractices, his prices would fall. Even if he had a good article to offer, it would always be regarded with suspicion, and he would not be able to get a commensurate price. So with the woolgrower who plays tricks with his wool-packs. Of course, we have always to differentiate between the small grower who does his own packing and does not understand the business from the man who wilfully tries to deceive the buyers. There is probably no keener lot of buyers of primary produce than the wool men.

One has only to enter a wool-selling room to see an illustration of this. Persons who have been accustomed to the haggling of an ordinary auction sale will be astonished at the rapidity with which thousands of pounds' worth of wool are knocked down. The fact is that each buyer knows to a fraction what he can afford to give, basing his calculation on his latest cabled advices from his principals, and beyond this fraction he will not go. One remembers a very estimable salesman who had been engaged in the hide trade suddenly called upon to take the hammer at a wool sale, and who was inclined to dwell, even to point out the excellent qualities of the clip. He got a very short lease. "Knock it down," was the insistent call from all parts of the room when the wool had reached the value point. As a matter of fact so fine is the point in wool selling that it is very often the man who can make the quickest and loudest bid at the figure who gets the wool.

Now, the wool-grower has little chance of fooling men of this class. They do not come all the way across the sea to be taken down by a grower. Besides this, there is the important point of collective morality. It should be the duty of growers as a whole to see that their wool may be taken as exactly what it is described to be, and what the top portions should lead one to expect in the remainder of the bale. It pays in the first place and all along the line. But, as a matter of fact, it is the practice of the industry that when false packing is discovered a claim can be made out at the manufacturing end. A leading buyer in South Australia recently said that "false packing of whatever nature works to the detriment of growers.

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E. O. Spindler, importer of full fashioned hosiery machinery, flat ribbed machines, warp knitting machinery and a wide variety of knitting and special machinery, has been obliged to increase his office facilities owing to the increase in business. He now occupies a suite of five rooms, 520 to 524 on the fifth floor at 350 Broadway, New York. This is the same location as before but in enlarged quarters. Among Mr. Spindler's more important accounts are those of David Richter, Inc. of Chemnitz, manufacturer of full fashioned hosiery machines "Cotton System," and Edward Dubied & Co., Couvet, Switzerland, manufacturers of flat knitting machines.

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NEW WESTERN AGENT

The Aberfoyle Mfg. Company of Chester, Pa. announces that they have secured the services of William L. Adams, as western sales agent for the sale of their mercerized yarns. Mr. Adams has been identified with the yarn trade for a number of years. His Chicago office will be 746 Insurance Exchange Building.

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CHAFFEE'S MILL WHITE

The requirements of a white paint to be used in textile mills are such that much study and many experiments have been made to prepare a suitable paint for the walls and ceilings of textile mills. The surface should be firm, smooth and permanent so that it is difficult for dirt and dust to adhere. The constituent parts must be free from any poisonous characteristics. The paint must not scale off and it should not be cracked or broken by the vibration of machinery, for much annoyance and serious damage is likely to result from the flaking off of paint and dust from the ceiling or walls covered with the wrong kind of paint. Add to these necessary features the light reflecting and light diffusing qualities which have recently come to be recognized as of great importance.

Until convinced by actual demonstration, many mill men would not believe what could be accomplished by the use of the proper kind of mill white paint. It lengthens the hours of daylight, saves on artificial lighting, brightens up dark corners and adds greatly to the contentment and efficiency of operatives. Human beings are intensely effected by their surroundings and they gravitate naturally towards the bright and cheerful places for work and pleasure and their surroundings correspondingly affected their efficiency. Employers of labor have come to realize the practical value of what appear to be mental conditions and there is nothing that contributes more to a cheerful and contented state of mind than a well lighted, bright and cheerful room, such as can be obtained with the use of proper paint.

Chaffee's Mill White, "a paint with a purpose," is designed to meet these requirements. It has been compounded especially for such specifications. Besides that it is easy to apply it smoothly and evenly with an ordinary brush. It has good covering qualities, which are important in the matter of the actual cost of the paint. The cost of application is approximately that of "lead and oil," while Chaffee's Mill White retains its intense whiteness.

Chaffee's Mill White is manufactured in gloss, eggshell or flat finish. In most cases for textile mills the high reflecting gloss surface is desirable, but there are other conditions where the other finishes are better adapted. It may also be obtained in any desired tint when the light reflecting qualities are not of the utmost importance.

The users of Chaffee's Mill White include many important textile establishments in New England, but while particular attention has been given to this class of manufacturing, machine shops, copper and brass works, foundries and miscellaneous industries are using Chaffee's Mill White with satisfaction. The transformation that has been accomplished in some cases where oil soaked dirty walls and ceilings seemed past redemption has been truly remarkable.

Sample boards showing the character and finish of Chaffee's Mill White are sent on request by the Thomas K. Chaffee Company, Providence, R. I.

THE INTERNATIONAL STEAM PUMP CO.

William B. Dixon has been elected president of the International Steam Pump Company to succeed the late Benjamin Guggenheim, who was among those lost in the Titanic disaster. Those who are familiar with Mr. Dixon's record in the steel industry know what a wise selection has been made. Mr. Dixon is a native of Pittsburgh and commenced work at an early age at the Homestead Steel Works, which had just been built and placed in operation. After several years' labor in the mills he was transferred to the office, acting at first in a clerical capacity and subsequently receiving rapid promotion through various grades until he reached that of Managing Director of the Carnegie Steel Co., becoming a partner in 1899. When the United States Steel Corporation was formed in 1901 Mr. Dixon accompanied Mr. Schwab to New York as assistant president and later was elected vice-president of the steel corporation, which position he held until May, 1911, when he resigned in order to retire from active business.

VALUE OF MOTOR HAULAGE

According to H. B. Pruden, manager of the Kissel Kar, New England Branch, manufacturers should consider these points in favor of motor haulage: "They give quicker service, thus greater customer-satisfaction; reliability, through the substitution of mechanical precision for animal uncertainty; actual saving in fixed delivery charges.

"Another telling point to be made for the commercial car is its readiness and adaptability for constant service. The more it is used, the greater dividends it will pay, while in the case of the horse, the reverse is true. A horse driven more than five or six hours a day soon becomes a mere nag, unable to do even what might ordinarily be expected of him. The motor truck's value grows with the growth of a business and its very possession is an important element in making that growth possible and permanent."

"TURN OFF THE SPRINKLERS"

"For Heaven's sake, turn off the sprinklers—the fire was out long ago!" That is what the captain of the fire company said after making his first inspection of an Ohio fire to which his engine had been called by the automatic sprinkler alarm. Although the engine house was only three hundred feet from the factory the fire was entirely out before the department arrived and the damage was insignificant.

The Bates Mfg. Co., Lewiston, Me., is making extensive additions to the power plant equipment of its cotton mills. The apparatus included in the installation consists of a large 1,875 kv-a. alternating current generator, two smaller generators of 200 and 25 kv-a. capacity, a 25 k. w. direct current generator and switchboard apparatus. The apparatus is of the General Electric Company manufacture.

Massachusetts, Conway. The sale of the Tucker & Cook Cotton Mill at auction a few days ago marks the end of the plant as a manufacturing location.

Massachusetts, Lowell. The Colombia Textile Co. has been incorporated with capital stock of $150,000 by P. Gulline, F. A. Fisher and C. A. Hildreth. The Fifield Tool Company shop on Marginal St. has been purchased. The nature of the proposed business has not been divulged.

Massachusetts, Lowell. It is reported locally that the American Woolen Company is to establish a yarn spinning plant in Lowell, utilizing a mill erected a few years ago for a machine shop. The American Woolen Company owns the buildings erected a few years ago for the Shaw Machine Company.

NEW MANAGER FOR ATLANTA OFFICE

The H. W. Johns-Manville Co. announce the appointment of C. S. Berry as manager of their Atlanta, Ga., office, 31 1/2 South Broad St. To facilitate delivery in the South a stock of roofings, packings, pipe coverings and other J-M asbestos, magnesia and electrical products is carried at this above address. This office also employs a force of workmen experienced in the application of J-M products.

KNITTING MACHINE EXHIBITION ROOM

The Grosser Knitting Machine Co. have taken additional space on the fourth floor of the Wool Exchange Bldg., 260 West Broadway, New York, and are fitting it up as a large exhibition room in which all kinds of automatic and hand knitting machines will be shown in operation. Their location is so central that visitors to New York will find it very easy to visit this exhibition room.

THE VILTER CORLISS ENGINE

The Vilter Mfg. Co., 1116 Clinton St., Milwaukee, Wis., builders of the Vilter Corliss engine, is operating its extensive plant on a day and night schedule. Their engines have a reputation for economy which has brought them into widespread use in all parts of this country and abroad. A good many textile mills are operated by the Vilter Corliss engines, among those where they are in operation being the Burson Knitting Co., Rockford, Ill.; C. H. Halle & Co., Chicago Heights, Ill.; Diamond Braiding Mills, Chicago Heights, Ill.; Paramount Knitting Co., Kankakee, Ill.; Lock Haven Silk Mills, Lock Haven, Pa.; Holmes Silk Co., Williamsport, Pa.; Ambrose West, Pittsburg, Pa.; Paramount Knitting Co., So. Boston, Va.; Fox River Valley Knitting Co., Appleton, Wis.; Beaver Dam Cotton Mills, Beaver Dam, Wis.; National Knitting Co., Milwaukee, Wis.; Phoenix Knitting Co., Milwaukee, Wis.; Reinhart Mitten Co., Milwaukee, Wis.

Recent Textile Patents

BLEACHING APPARATUS. 1,044,185. Eugene D. Jefferson, Lowell, Mass.

CLOTH-CUTTING Device. 1,046,783. Stanley Hardy, St. Louis, Mo.

CLOTH-FOLDING Machines, Taking-in Device for. 1,046,393. Johann Koehlen, Crefeld, Germany.

CLOTH-STEAMING Machine. 1,047,683. Herman Moritz, New York.

CLOTH STRETCHING and Finishing Machine. 1,046,519. John J. Westbrook, Danville, Va.

DRYING APPARATUS. 1,046,058. William S. Duell, Amsterdam, N. Y.

ELASTIC FABRIC. 1,044,890. Waldemar Kops, New York.

FIBER-CLEANING Machine. 1,046,641. Angel Pons, Buffalo, N. Y.

FIBROUS MATERIALS, Automatic Machine for Treating. 1,047,874. Thomas Allsop and Walter W. Sibson, Philadelphia, Pa.

HOSIERY-FORM, Electrically-heated. 1,046,514. Frederick M. Vogel, Pittsfield, Mass.

KNITTING MACHINE, Circular. 1,044,537. Edward E. Kilbourn, New Brunswick, N. J.

KNITTING MACHINE. 1,045,570. John Lawson, Central Falls, R. I.

KNITTING MACHINE. 1,046,147. William W. Burson, Chicago, Ill.

KNITTING MACHINE, Circular. 1,047,712. Robert W. Scott, Leeds Point, N. J.

KNITTING MACHINE, Fashioning. 1,046,764. Emil J. Franck, Philadelphia, Pa.

KNITTING MACHINE Needle-actuating Mechanism. Harry H. West, Plymouth, Pa.

KNITTING MACHINE, Welt. 1,047,355. Frank B. Wildman and George L. Ballard, Norristown, Pa.

KNITTED WEB and Making Same, Welted. 1,045,620. Robert W. Scott, Leeds Point, N. J.

KNITTING MACHINE Splicing Mechanism. 1,044,943. William N. Taggart, Philadelphia, Pa.

KNITTED Undergarment. 1,045,635. Harry Swinglehurst, Philadelphia, Pa.

KNITTED WEB and Making Same, Selvaged. 1,045,621. Robert W. Scott, Leeds Point, N. J.

LOOM. 1,047,363. John E. Yarnrough, Atlanta, Ga.

LOOM Attachment. 1,046,669. Isaac Snow, Lawrence, Mass.

LOOM BEAM. 1,044,685. Frank Mossberg, Attleboro, Mass.

LOOM, Automatic Filling-replenishing. 1,047,186. Sayers D. Eubanks and James E. McBroom, West Durham, N. C.

LOOM for Cocoanut Matting, Power. 1,047,798. Otto Hallensleben, Hanau, Germany.

LOOM-HARNESS. 1,047,311. James E. Scott, Brunswick, Me.

LOOM HARNESS Stop Motion. 1,045,569. Charles Lavallee, New Market, N. H.

LOOM WARP Stop Motion. 1,045,170. Jonas Northrop, Hopedale, Mass.

LOOM, Weft-replenishing. 1,045,443. Eppa H. Ryon, Waltham, Mass.

LOOM WARP Stop Motion. 1,045,169. Jonas Northrop, Hopedale, Mass.

LOOM THREAD Parting Mechanism. 1,045,438. Alonzo E. Rhoades, Hopedale, Mass.

LOOM THREAD Parting Mechanism. 1,045,437. Alonzo E. Rhoades, Hopedale, Mass.

LOOM THREAD Parting Mechanism. 1,045,508. Louis S. Burbank, Hopedale, Mas. s

LOOM Thread-parting Mechanism. 1,047,448. Alonzo E. Rhoades, Hopedale, Mass.

LOOM WARP Stop Motion. 1,047,080. George Koch, Shelton, Conn.

LOOM WARP Stop Motion. 1,047,081. George Koch, Shelton, Conn.

SINGEING MACHINE. 1,046,878. Walter W. Sibson and Thomas Allsop, Philadelphia, Pa.

SHUTTLE, Hand Threading. 1,047,056. Adelard Houle, New Bedford, Mass.

SHUTTLE. 1,044,372. Joseph Gagnon, Fall River, Mass.

SPINDLE SUPPORT for Spinning, Twisting, and Like Machines. 1,047,187. George W. Farnham, Lowell, Mass.

SPINDLE SUPPORT for Spinning, Twisting, and Like Machines. 1,047,188. George W. Farnham, Lowell, Mass.

SPINDLE SUPPORT for Spinning, Twisting, and Like Machines. 1,047,189. George W. Farnham, Lowell, Mass.

STOP MOTION Device. 1,047,478. William O. Aldrich, Whitinsville, Mass.

SPINNING and Twisting Frame for Fibrous Materials. 1,047,123. Thomas A. Boyd, Glasgow, Scotland.

STOCKING. 1,044,567. Emma C. Parsons, Somerville, Mass.

STOCKING DRIER. 1,046,983. Harry Coulston, Philadelphia, Pa.

SPINNING MACHINES, Yarn Condenser and Polisher for Cordage. 1,045,064. Otaker Nedvidek, Milwaukee, Ore.

STOCKING and Other Fabric Drier. 1,047,039. Alberg Gee, Philadelphia, Pa.

STOP MOTION. Duplex. 1,047,479. William O. Aldrich, Whitinsville, Mass.

SINGEING MACHINE. 1,047,875. Thomas Allsop and Walter W. Sibson, Philadelphia, Pa.

TEXTILE MACHINERY, Manufacture of Covers for Rollers Used in. 1,044,956. Robert Warwick, Andrew Reason, Bolton, England, and Walter Warwick, Bombay, India.

THREAD FINISHING Machine. 1,046,197. William C. Keyworth, Paterson, N. J.

THREAD CUTTING and Holding Attachment for Spools. 1,043,014. Theresa I. Butts, Albuquerque, N. Mex.

THREAD GUIDE. 1,044,068. Arthur A. Merritt, Worcester, Mass.

WINDING YARNS or Threads onto Bobbins or the Like, Machinery for. Alfred Seeley and Herbert Holt, Rochdale, England.

RECENT TEXTILE TRADE-MARKS REGISTERED

64,308. Knitted underwear and hosiery. Mark: Gilt Edge. Owner: Carson, Pirie, Scott & Co., Chicago, Ill.

65,501. Woven fabrics composed mainly or wholly of paper threads. Mark: Rattania. Owner: Hodges Fiber Carpet Co., Indian Orchard, Mass.

66,291. Cotton piece goods. Mark: Time and Tide. Owner: Grinnell Willis & Co., New York.

64,027. Sweaters. Mark: The Varsity. Owner: Rauser, Leavens & Kissinger Co., Milwaukee, Wis.

64,124. Cotton goods in the piece. Mark: Zebra Stripe. Owner: Pemberton Co., Lawrence, Mass.

65,138. Suits, drawers, shirts, etc. Mark: Belmore. Owner: Theodore F. Baulig, Egg Harbor, N. J.

65,706. Mufflers. Mark: Franklin Knitting Mills, New York. Owner: Franklin Knitting Mills, New York.

66,149. Hosiery. Mark: Granite. Owner: William Brown Co., Philadelphia, Pa.

66,365. Stockings. Mark: Summer Girl. Owner: O'Callaghan & Fedden, New York.

66,367. Stockings. Mark: Remember Me. Owner: O'Callaghan & Fedden, New York.

66,399. Cotton thread. Mark: "XRA" Rainbow. Owner: New England Cotton Yarn Co., Boston, Mass.

64,035. Textile belting. Mark: Gutta-Balata. Owner: Boston Belting Co., Boston, Mass.

65,122. Machine-made cotton lace. Mark: E R L. Owner: A. Herbert Woolley & Co., Nottingham, England.

65,132. Cotton piece goods. Mark: Wild Rose. Owner: Grinnell Willis & Co., New York.

66,619 Stockings. Mark: But-I-No-1. Owner: Ellen W. Decker, New York.

65,939. Fancy ginghams. Mark: Juvenile. Owner: Rusch & Co., New York.

66,643. Mercerized thread. Mark: Encore. Owner: Sea Island Thread Co., New York.

24,146. Waterproofed textile fabric. Mark: Dryfoot. Owner: Massachusetts Chemical Co., Walpole, Mass.

59,753. Hosiery. Mark: Collegiate. Owner: Henry G. Hodges, Reading, Pa.

65,726. Hosiery. Mark: Steel King. Owner: I. Rome & Sons, Worcester, Mass.

66,292. Cotton piece goods. Mark: Red Wing. Owner: Grinnell Willis & Co., New York.

59,070. Hosiery and knit underwear. Mark: Lasherhose. Owner: Vermont Hosiery & Machinery Co., Northfield, Vt.

66,947. Handkerchiefs. Mark: Cloister Handkerchiefs. Owner: James R. Keiser, New York.

64,111. Woolen cloth. Mark: A. W. Co. Chinchilla 6100. Owner: American Woolen Co., Jersey City, N. J., and Boston, Mass.

64,114. Woolen cloth. Mark: Wood Serge A. W. Co. 400. Owner: American Woolen Co., Jersey City, and Boston, Mass.

64,615. Knitted undergarments. Mark: Taknico. Owner: Taunton Knitting Co., Taunton, Mass.

64,949. Hosiery. Mark: The Master Hose. Owner: Belleville Hosiery Mills, Belleville, Ill.